
This is a reproduction of a library book that was digitized by Google as part of an ongoing effort to preserve the information in books and make it universally accessible.

GoogleTM books

<https://books.google.com>





Nautical
VXA

THE
NAUTICAL MAGAZINE

FOR 1876.

NEW SERIES.

A JOURNAL OF PAPERS

ON SUBJECTS CONNECTED WITH

MARITIME AFFAIRS.

"THE SEAS BUT JOIN THE NATIONS THEY DIVIDE."

VOLUME XLV.

London:

SIMPKIN, MARSHALL & CO., STATIONERS' HALL COURT;

AND

J. D. POTTER, 31, POULTRY.

THE
NEW YORK PUBLIC LIBRARY

PURCHASED FROM THE

JAMES OWEN PROUDFIT FUND



Nautical
VXA

THE
NAUTICAL MAGAZINE

FOR 1876.

NEW SERIES.

A JOURNAL OF PAPERS

ON SUBJECTS CONNECTED WITH

MARITIME AFFAIRS.

"THE SEAS BUT JOIN THE NATIONS THEY DIVIDE."

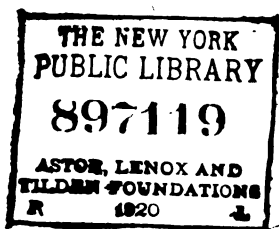
VOLUME XLV.

London:

SIMPKIN, MARSHALL & CO., STATIONERS' HALL COURT;

AND

J. D. POTTER, 31, POULTRY.



LONDON:

PRINTED BY PEWTRESS AND CO.,
Steam Printing Works,

15, GREAT QUEEN STREET, LINCOLN'S INN FIELDS, W.C.

THE
NAUTICAL MAGAZINE.

VOLUME XLV.—No. 1.

JANUARY, 1876.

SHIPOWNERS: THE FEW AND THE MANY.

THE Haytians have a proverb that "combination is stronger than witchcraft." A writer in an American contemporary observes thereon that "only good motives and purposes will combine. The selfish, which are the sinful and predatory motives, are all distrustful, and therefore incapable of acting in concert." Again, Lord Lytton observes in "Kenelm Chillingly" that "it is a wonderful proof of the wisdom of Providence that whenever any large number of its creatures forms a community or class, a secret element of disunion enters into the hearts of the individuals forming the congregation, and prevents their co-operating heartily and effectually for their common interest." And Curran, when speaking on the subject of the absence of co-operation, observed that "if all the spiders in this commonwealth were to attack me in a body I should fall a victim to their combined nippers."

The above array of quotations is intended to draw the attention of our readers to various aspects of combination. Seeing, as we may now do, in this country many combinations of an exceedingly questionable character, we are unable to agree with our American contemporary that "only good motives and purposes will combine;" but, on the other hand, indeed, we have daily evidence of the truth of Lord Lytton's words as to the power of "secret elements of disunion" in many classes. For ourselves, we are disposed to agree with Curran as to the mighty power of combination when properly organised, and its purposes properly executed, without regard as to whether those purposes are good or bad.

There are sufficient proofs all over the world that unity is strength, no matter whether the units have good or bad objects in view. To insure success it seems to be only necessary to root out, if possible, from the combining association the secret elements of disunion referred to by Lord Lytton.

Perhaps the evil effects of secret elements of disunion can nowhere be found more fully developed than in the commercial class which is employed in the conveyance of passengers and goods. Our experience of these interests is large, and we have often found one member or one section that has had something very bad to say against other members and sections. The sections are numerous, and we may enumerate a few of them as follows :—First, there are competing lines of ships in the same trade ; then there are the long voyage interests careless of the coasting interests ; again there are the steamship interests careless of or opposed to the sailing ship interests ; the railway interests as opposed to the ships, and various other smaller interests opposed to each other.

The recent agitation about which shipowners have so bitterly complained would, we venture to say, have been combated and put down by force of reason and truth, if there had been anything like unanimity among carriers. Instead of unanimity we find that owners of coasting steamships are silent in regard to the proposed breaking up of many sailing coasting craft ; for does it not mean more carrying to be done by the coasting steamer ? The sooner the coasting sailing carrier can be ruined and run off the sea the better it will be for the interest owning coasting steamers. Again, the carrier by railway looks on placidly, and is, perhaps, rather pleased than otherwise, while the ship of the steam coast carrier is detained, hampered, or in any other way rendered unremunerative, for he knows that every ton of goods and every passenger driven from a coasting steamer means a ton of goods and a passenger gained to the railway. The carrier by rail and the steam coast carrier by sea are both well represented in the House of Commons, and they are able in a measure to speak for themselves against any proposed legislative interference which is likely to be prejudicial to their interests ; but the little sailing coasting and short voyage carrier has no one to speak in his behalf, and he, poor honest little fellow, the “ costermonger of the sea,” as he has been aptly called, the backbone of our marine reserve force, is being first wept over by the humanitarian, then inspected and legislated for, and then “ moved on,” till his little vessel finds rest in the ship-breakers yard or under a foreign flag. “ Humanitarians ” will not allow him to expose himself to the rough competition of carrying goods on the sea coastwise and on short voyages ; and other carriers of goods coastwise, viz., the steam carriers by land and by sea, applaud the humanitarian. In doing so in this case they can satisfy two yearnings at once—they can indulge in a little comforting sentiment, and

at the same time do something towards increasing their own gains. To Dives the shipowner, probably nothing could be more gratifying than this, but it would be impossible if Lazarus the shipowner, were regarded by Dives in the light of a brother.

There are other instances we could mention of the evil effects of the absence of co-operation, but we wish now to refer to one or two special instances which at the present moment deserve some attention.

By an Act passed during the last session, and following on the Acts of 1871 and 1873, power has been given to the Board of Trade to detain unseaworthy ships, and owners are required to state in the articles of agreement with their crews the amount of freeboard they intend each ship to have for the voyage, and the contract with the crew is to be made visible and unmistakable by a disc and deck-lines marked on the side of the vessel, the disc being intended to show the "maximum load-line in salt water to which the owner intends to load the ship for that voyage," and the deck-lines to show the height of the deck or decks above the said load-line.

We much fear that some shipowners by their action with regard to these provisions are in danger of calling down on the whole body some more severe legislation than now exists. For instance, it appears that when some ships have been duly detained, the owners or their agents and servants, instead of appealing to a court of law as by statute provided, have taken the matter into their own hands and carried off to sea the customs' officers put on board as Her Majesty's representatives to enforce detention. We hear that in a recent case a ship so detained sailed defiantly away on a long foreign voyage with two customs' officers on board. It is not possible to suppose that action of this sort by individuals of the shipping community can benefit the whole body in any way; but it is quite possible to see that this disunion by which some members break the law and defy authority will be thrown in the teeth of the whole body, bringing them into closer bondage and under more rigorous statutory penalties. There are also owners who have been defying the law by colorable transfers of their ships to foreign flags. Some of these transfers have been so bungling, so transparent, and above all so obviously for the purpose of retaining the ship as a British ship, and sailing her so as to avoid British liabilities, that the report of such doings brings odium upon the whole body of shipowners, and suggests to the public that a necessity exists for more severe legislation and perhaps of criminal prosecution.

Again, as regards the marking the load-line discs, the action of some owners has already been of such a character as to create elements of disunion in the shipowning body. The clause in the Act of 1875, respecting the load-line, is very distinct. It says that the centre of the disc

“shall indicate the maximum load-line in salt water, to which the owner *intends* to load the ship *for that voyage*, and when the disc is put on in the United Kingdom its place cannot legally be altered until that voyage is completed, or the agreement with that crew is ended. When the agreement entered into with the crew before clearing outwards from the United Kingdom ends, and another voyage under a fresh agreement is entered into out of the United Kingdom, then, of course, under the Act, the load-line disc may be removed, and need not be remarked; but our concern is with the marking of foreign-going ships on leaving the United Kingdom. Evidence was given before the Royal Commissioners, and has since been publicly admitted by more than one shipowner, that the owner of a ship, who knows anything of his business, is well aware of what is a safe and proper load-line for his ship. And even if he does not know this himself, he can employ experts who do know, and would be glad to tell him—the register societies, the club surveyors, naval architects, and surveyors in private practice, for instance. If an owner should be ever so unwise as to say that he cannot fix, or get some one to fix for him, a safe load-line for his own ships, it is equivalent to admitting that he does not understand his business, and is a person dangerous to passengers, seamen, owners of goods, and underwriters. It is obvious that the Act, of 1875, proceeds on the assumption that an owner ought to know, does know, or at any rate can know if he pleases, what that line is; that he can know it, and ought to know it, without the assistance of a Government surveyor; and that, knowing it, he can and shall mark it on his ships so that the crew may know it too. It is well known to everybody possessing the most elementary information that outward-bound ships, as a rule, go to sea lighter than homeward bound ones. It is therefore right to expect that an owner shall so mark the disc that his ship may load to her proper depth homeward. It is reasonable to say the owner so *expects*, and, therefore, that he so *intends*, to load her during that voyage, and everyone must understand that foreign-going ships may be expected to leave the United Kingdom with their discs out of the water, and return with them down to the water. But instead of this reasonable proceeding, we unfortunately find in some cases that the owner's disc is intentionally so misplaced that to load up to it would often mean jeopardy to ship and crew; and the load-line legislation, even in its present very mild and reasonable form, is, when carried out by some shipowners, an absolute source of danger, and a trap to the crew. It is such owners as these who ridicule just legislation, and who raise a cry of “harassment” when they are interfered with. It is true, that if a ship with a load-disc so placed were to disappear, the position of the disc (which is carefully recorded) would be most damning evidence against the owner, and would probably lead to a forfeiture of

insurance or expensive litigation. What can, then, be the motive for this occasional deliberate misplacing of the disc? This question, we think, can easily be answered. The load-disc was advocated on the ground that the sailor could always know for himself how deep the ship is intended to be loaded, and would visit her, and not go to sea in her if the disc were placed too high. This is, of course, a pure delusion. The British sailor, except in rare cases, never does go to see the ship he engages in. All that many seamen care about is their advance-note, and their last hours of drunkenness ashore. The owner then places the disc so high that he never means to load down to it, and he so misplaces it that the sailors may not object to proceed to sea on the plea that it is under water, a short-sighted proceeding to meet a small inconvenience. Another reason why the load-disc is, in some ships, placed high up is that, owing to the action of the register books, an exceedingly dangerous description of ship has been called into existence—we refer to ships of the so-called awning-deck class. If these ships were to be marked according to any recognised principle of safety, their marks would be so low as to take away all chances of remunerative employment. One more reason for misplacing discs is a deliberate intention of challenging a survey, or detention, by Board of Trade officers, for, if an owner wilfully misplaces the disc and parades the fact, and, like the Irishman, invites the Board of Trade to tread on his coat tail, he assumes that he will get the Board of Trade officer to fix the load-line for him, and so relieve him of all responsibility.

Happily, in this matter of misplacing the disc a Nemesis arises out of the consequences of such an act. Some cases coming under our notice have shown that it is more than probable that an owner who resorts to such practices may over-reach himself. If he deliberately overloads his ship, and improperly marks her freeboard, he may be sure that a conscientious officer who understands his duty will not suffer the ship to clear out until she is lightened to such an extent as to remove all chances of doubt as to her safety; and the owner, by his own act, will have forfeited all claim to sympathy, for he will, as it were, have publicly asserted that he knew he ought to be looked after. Again, supposing a ship with its load-disc marked too high is lost. The position of the disc being recorded in the Customs' entries, and in the office copy of the agreement with the crew, it will be asserted and proved that the ship was dangerously loaded, if loaded to it. It will be no answer for the owner to say, "Oh, but I never meant to load her to that, and she was not loaded to it," for the Act says that the disc is to show the line to which the owner does intend to load her for that voyage. The short-sighted owner who places his disc high in order to avoid trouble or to challenge unnecessary interference is thus laying a secure trap for

himself, for he will have to prove in a court of law that she was not so loaded, and that his statement (in accordance with the Act) that he intended so to load her was a deliberate misrepresentation of fact; and as he will afterwards be compelled to assert that he deliberately misstated fact as regards his intentions at the commencement of the voyage, he will scarcely be believed in court when his ship is lost, for the court will naturally conclude that if an owner would make a deliberate misstatement, knowing that it would be placed on record, he would not scruple to make other deliberate misstatements afterwards. In short, he would have to prove that he knowingly told one lie, and then he would have to bring that very fact forward as evidence of his *bona fides* as regards subsequent loading.

In the interest of the shipowning community at large we regard it as a duty to point out the existence of such malpractices as those to which we have referred, and, pursuing the text with which we commenced these remarks, to add that there seems to be a want of coherence and concerted action amongst shipowners of all classes to uphold the law, and an absence of high principle in some members which prompts them to deliberately disobey the law. United, the shipping interest would be unassailable; but disunited (and does this disunion arise because, as our American contemporary says, "predatory motives are distrustful, and therefore incapable of acting in concert?"), they are a routed army, distracted and harried by feminine vituperation, and the clamour of an ignorant multitude. We would counsel the shipping community to co-operate in upholding the law, and not to play into the hands of those who desire to subject the Mercantile Marine to restrictions more onerous than those now in force. It is more than probable that a leader, with broad and generous views and accurate knowledge concerning ships and seamen is what is wanted now. Such a man as the late Mr. S. R. Graves would no doubt have been the means of uniting the whole body of shipowners in wise and temperate action, and we are sure it is quite possible to find another such leader at the present time.

Since the above was written, we learn that the General Shipowners Society have issued a circular strongly urging all shipowners to mark their discs in accordance with the spirit of the Act of 1875. This, in our opinion, is a very creditable action on the part of that important body, and we congratulate them upon their discretion. In the interests of the shipping community at large, it is to be earnestly hoped that this recommendation will be generally followed.

THE CONTAGIOUS DISEASES ACTS: OUGHT THEY TO BE EXTENDED TO ALL SEAPORTS?

IT has often been said that one half of the world does not know how the other half lives and dies, and, making due allowance for the errors which must always exist in assertions of so sweeping a character, it must be admitted that there is great truth in such saying. It is capable of great and comprehensive application. Thus it applies to those who live in extraordinary and isolated localities, where, being cut off from the great world, their lives must be altogether peculiar; and as an illustration, we may give one that will be familiar to readers of the *Nautical Magazine*; the inhabitants of lighthouses situated on the lonely islet or barren rocks, and the crews of light-ships riding at anchor in a wild waste of waters. Again, the saying applies to persons whose occupation requires them to turn night into day and day into night, such comprising a very large class of useful persons: railway employes, compositors, policemen, night watchmen, nurses, and others too numerous to mention. But more frequently the remark is intended to apply to those who live in poverty and filth in the haunts of crime, in the courts and alleys of towns; some the victims of poverty, others of drunkenness and crime. That half of the world which is ignorant is no doubt fully aware that in this case "ignorance is bliss," and that the knowledge when gained would be very far from gratifying. And there is a class which till recently was scarcely known and certainly little cared for: we mean those females called in newspapers "unfortunates;" in polite literature seldom alluded to at all. Only this year has Anthony Trollope done so, than whom probably no one knows the British public better, nor with what sort of literature they should be provided. In his preface to this recent work, he says:—"I have introduced in the 'Vicar of Bullhampton' the character of a girl whom I will call—for want of a truer word that shall not in its truth be offensive—a castaway. I have endeavoured to endow her with qualities that may create sympathy, and I have brought her back at last from degradation at least to decency." . . . "It is not long since—it is well within the memory of the author—that the very existence of such a condition of life as was hers was supposed to be unknown to our sisters and daughters, and was, in truth, unknown to many of them. Whether that ignorance was good may be questioned; but that it exists no longer is beyond question." He proceeds in a most humane and touching strain to show how such a girl may be allured to the life by the false glitter which surrounds it,

and how very difficult the return to decent life in the present state of society must be.

In the *Nautical Magazine* for December, 1874, is an article, entitled "Unseaworthiness Ashore—The *Saucy Lass*," by L.R.C.P. Lond. In this the writer shows some of the benefits which have accrued to soldiers, sailors, and the "unfortunates" with whom they consort, by means of the Acts of Parliament passed in 1864, 1866, and 1869. If we may venture on a word or two of friendly criticism on our professional brother's literary work, we would remark that his article, written as it is in a pleasant, humorous, lively vein, is somewhat apt to be misunderstood, and now that the Contagious Diseases Acts have existed for eleven years and effected an enormous amount of good—physical, moral, and social—in that interval, it becomes desirable that we should speak plainly, and ask why are they not extended to all seaports where the diseases they are intended to cure and prevent are rampant? Again, L.R.C.P. Lond. fell into the error of supposing that the Acts were, on passing, subjected to strenuous opposition. This is not so, as we shall presently see. Let us first glance at what previously occurred. In 1862 a Special Committee was appointed by Government to enquire into the prevalence of venereal disease in the Army and Navy; their report concludes as follows:—"Your Committee have refrained from entering into the painful details which have come to their knowledge of the state of our naval and military stations at home as regards prostitution. These facts are so appalling that they feel it a duty to press on the Government the necessity of at once grappling with the mass of vice, filth, and disease which surrounds the soldiers' barracks, and seamen's homes, which not only crowds our hospitals with sick, weakens the roll of our effectives, and swells the list of our invalids, but which surely, however slowly, saps the vigour of our soldiers and our seamen, sows the seeds of degradation and degeneracy, and causes an amount of suffering difficult to over-estimate." It is well known to those whose business it is to know it, that the above sentence will apply now, almost word for word, to most of our large seaports which are not protected by the Contagious Diseases Acts, of which Liverpool, Hull, Bristol, Cardiff, Pembroke, &c., are notable instances. To proceed: the Committee recommended that Lock hospitals should be established on the voluntary principle at the seaports for the treatment of infected women, and improved sanitary conditions in the barracks and on shipboard, with greater facilities for private personal ablution. Hospitals had already been provided on a small scale for such patients, and were subsequently increased, but as the women could only be got in on their own application, little good was effected, and though before the first Act was passed in 1864, 108 beds had been provided by Government for females at Portsmouth, Devonport, and Chatham, the

surface of the evil had been barely scratched. The Act of 1864 passed with very little opposition, and though only very partial in its application, an enormous amount of disease was got at, isolated, and cured. Thus, in two years at Portsmouth, 1,141 patients had been treated in hospital, and 1,084 discharged cured ; at Devonport 567 had been admitted into hospital and 478 discharged cured ; at Sheerness 160 women had been sent to hospital. At Plymouth and Devonport more than 600 women had quitted the district or abandoned prostitution, and at Portsmouth the reduction had been on a similar scale. In 1866 a new Act was passed enlarging the area of operations, and with new and stringent clauses (providing, amongst other things, for the regular periodical medical examination of all women known to be practising prostitution). The districts it applied to were twelve in number, Portsmouth, Plymouth and Devonport, Woolwich, Chatham, Sheerness, Aldershot, Windsor, Colchester, Shorncliffe, the Curragh, Cork, and Queenstown. It was also enacted, that every hospital should make adequate provision for the moral and religious instruction of the women detained therein under this Act. The beneficial results may be gathered from what followed. Firstly, an Association consisting of many of the most eminent members of the medical profession, many clergymen of high position, the leading educational authorities at the universities, and many well-known philanthropists, was formed for promoting the extension of the Acts to the civil population. Their object is thus briefly defined in their first report :—"To eradicate, as far as possible, a contagious disease of the gravest character, which is constantly transmitted from parent to offspring, by removing those affected with it from opportunity of propagating their disorder, and to induce the moral and social improvement of a numerous and degraded class." Then, in 1868, a Committee of the House of Lords was appointed to consider whether the Acts should be extended, and reported in favour of the cautious extension of the Act of 1866 to all naval and military stations, and to any locality the inhabitants of which may apply to be included in its operations. Then, and not till then, arose that opposition of which we have heard so much, and which, though fortunately not by any means successful, has been exceedingly mischievous. One good result has followed—all efforts have failed to bring to light any case of oppression on the part of the special police employed under the Acts, who have been placed under the strictest scrutiny. The late Mr. Acton, the eminent surgeon of London, whose long labours on behalf of this unfortunate class entitle his memory to the greatest respect and praise, thus speaks of a protest signed by 180 ladies against the Acts :—

"I must thank the 180 ladies who signed this protest for having come forward in defence of their sex. Now that they have taken up the cause

of their fallen sisterhood, no doubt can exist that the future of the woman called 'unfortunate' will command that attention which hitherto has been denied to her. I beg to assure these ladies that the medical profession has ever treated these unfortunate women with the most signal and marked tenderness and sympathy. If surgeons are left to deal with questions and to remove evils, the cognisance of which comes peculiarly within their province—if the ladies and the clergy, and all who have at heart the well-being of the race, will deal with those evils which they can severally remedy—and if all will unite in the common cause, not magnifying their own peculiar provinces, nor depreciating that of others, but, gaining and giving mutually all the help and strength they can, we may hope to see, not the extirpation of prostitution, for this can only come to pass when poor humanity ceases to be frail and sinful, but a considerable diminution of the number of prostitutes, and a great amelioration of their condition."

In 1869, a Select Committee of the House of Commons was appointed to consider whether it would be expedient to extend the operations of the Act of 1866. They report:—"Prostitution appears to have diminished, its worst features to have been softened, and its physical evils abated." They recommended some changes, among which were that Gravesend, Maidstone, Winchester, Dover, Deal and Walmer, Canterbury, Dartmouth, Ivy-Bridge, and Southampton, should be included in the schedule of the Act. In spite of the continued opposition, the Act of 1869, as thus suggested, was passed; and when, in the following year, the first motion for the repeal of the Acts was brought before the House it was negatived by a large majority, and a Royal Commission was subsequently appointed to inquire whether the Acts should be amended, maintained, extended, or repealed. They recommended certain amendments, but reported favourably as to the amount of good which had been effected. This may be judged by a concise summary contained in a dissent from the above by seven of the most influential of the Commissioners (Sir John Pakington, Viscount Hardinge, Sir J. S. Trelawny, Bart., Drs. Paget and Wilks, Mr. Timothy Holmes, and Mr. Hastings), who considered that the Acts of 1866 and 1869 should be fully maintained. They thus sum up the results of the Acts:—

(a) Religious and moral influence has been brought to bear upon large numbers of women, a great portion of whom had been from infancy familiar only with scenes of debauchery and vice.

(b) Towns and camps have been cleared or nearly so of the miserable creatures who were formerly to be found in their streets and thoroughfares.

(c) A considerable number of abandoned women have been reclaimed and restored to respectable life, and in many instances married.

(d) The number of loose women has been greatly reduced, and those who remain have been rendered more decent and decorous in appearance and conduct.

(e) The practice of clandestine prostitution, which too often degenerates into professional vice has been materially checked by fear of the consequences of such indulgence which are rendered probable under these Acts.

(f) The sad spectacle of juvenile prostitutes of tender age, so rife in such localities heretofore has been greatly diminished ; in some instances almost removed.

(g) The temptations by which young men of all classes have been hitherto assailed have been to a great extent taken out of their way, and morality has thus been promoted.

A memorial also in favour of the Acts being left in full force was signed by 2,500 members of the medical profession, who must be regarded as impartial witnesses, since the extinction of these diseases has entailed considerable pecuniary loss to their brethren in districts protected by the Acts, which if universally adopted would extend this loss to all the members of the profession. With all these facts before us, facts which are stubborn things, we cannot be surprised at the result of the two different attempts which were subsequently made to repeal the Acts.

On May 22, 1873, Mr. Fowler brought forward his Bill for Repeal of the Contagious Diseases Acts, 1866, 1869, which was defeated on the motion of Sir John Pakington, by a majority of 123 ; 128 voting in favour, 251 against.

And on the 23rd June last Sir Harcourt Johnstone brought in a similar Bill, which was, however, lost by a majority of 182 ; 126 voting for, 308 against. We may therefore consider the Acts safe for a season, though we cannot hope that the opponents are silenced. But reason and common sense must carry the day, and we may now turn to a very practical part of the question, ought they to be extended to all large seaports ? by considering what is the state of matters in some of those which are not under the Acts, as regards prostitution. We will take them first generally, and then give particular instances.

In some respects the merchant seaman is better off, undoubtedly, than his brother in the Navy. He has better pay, and can pick and choose his sphere of life to a great extent. He has also (though this is a doubtful advantage) more liberty ashore, and can abandon his seafaring life without having to pay any indemnity. But on the other hand these very freedoms are fraught with evil to him, and it cannot be denied that the Mercantile Marine contains amongst its seamen a large number who would never pass muster as A. B.'s on board a man-of-war. Then, though he has better pay, it must be acknowledged that he has very

little inducement to marry, and that a woman worth having has very little inducement to marry him. He is cut off from all those associations which make married life the happier one, except for a few weeks yearly; however sober he may be, and with the most rigid economy he cannot do more than "make both ends meet," while, if a numerous family come, he will have hard work to "keep the wolf from the door." She, on her part will have none of the support a husband gives to a wife in the daily and hourly troubles of life, her lonely life will expose her to many temptations, the monthly "allotment" will not suffice to keep her without assistance, while the sudden death of her husband from any of the many perils incidental to his calling will plunge her into the deepest poverty. Under these circumstances it is easy to see what the average seaman is more likely to adopt; what has been said before, and we repeat it as a sad truth, not as a joke, "a wife at every port he calls at." And when we know that hundreds of men are landed weekly, sometimes daily, at our large seaports, who in a few days will receive sums varying from £5 to £20 each, all of which they are ready to squander as fast as possible, can we wonder that there are plenty of "sharks," both male and female ready for them. And what description can be given of these female sharks, the keepers of those dens of infamy which the Acts have so greatly reduced in Portsmouth, Plymouth, and Devonport, but which still exist in large numbers in Liverpool, Hull, Bristol, &c., and what shall we say of their inmates?

The surgeon of Her Majesty's ship *Audacious* at Hull, in his annual report of the health of the crew for the year 1872, describes the lower parts of the town as a "*filthy focus of foul prostitutes, and reckless and degraded seamen.*" During the year, in an average force of 416 men there were 125 cases of the worst form of venereal disease, being an annual ratio of 300 per 1,000.

Again, Bristol and Cardiff each have localities in their midst which might be described in similar terms. In fact it must in the very nature of things be so when all the circumstances are considered. The worse form of the disease which these Acts were passed to prevent has existed for thousands of years, and still remains unchecked though perfectly preventible, and capable by judicious laws of being stamped out. And yet from the inseparable way in which it is bound up with vice and impurity, no disease has, perhaps, received so little attention from the charitably disposed. Thus, though it may be laid down as an axiom that in every seaport at least one-third of all the women known to the police as common prostitutes are diseased, what has been done by voluntary aid towards providing hospital accommodation for them or any proportion of them? In Liverpool (as we shall see) there is a Lock hospital with twenty-five beds for females. There is no Lock hospital in Bristol, Hull, or Cardiff,

and, so far as we are aware, no Lock wards in any of the hospitals in these towns. Again, when the Government sought at first to obtain accommodation for infected women in the civil hospital at Plymouth and elsewhere, and made liberal offers towards cost and maintenance, their offers were rejected, and the unfortunates, with their diseases, were left to take care of themselves. It was found necessary, in order to cope successfully with the evil, to provide 162 beds for the three towns—Plymouth, Devonport, and Stonehouse; and 120 beds for Portsmouth. Then, and then only, was the disease reduced. Hence we gain some idea as to how necessary a Lock hospital is in every large seaport. It need not be a large, permanent one, especially if the Acts be enforced. A small hospital will suffice, provided there be arrangements for making increased temporary accommodation.

But some will say, "There are workhouses, are there not? What about them?" The answer is that they are not hospitals, but places for paupers of the parish in which they are situated; and when "unfortunates" can from disease no longer continue their dreadful calling, to the workhouse they must go, since they have become paupers. But who shall measure the amount of misery and suffering they have both caused and endured during the interval which has elapsed from the first onset of their malady till their appearance at the workhouse or hospital door? This can only be guessed by those who see them on their arrival—the medical officers of workhouses and Lock hospitals. And even if voluntary hospitals were provided in abundance, it does not follow, unfortunately, that they would be availed of as they should be. On this point we may quote from the last report of the Association for Promoting the Extension of the Contagious Diseases Acts:—

"The voluntary system has been tried and has proved an utter failure. It has never been found practicable to induce the public in London or elsewhere to support Lock hospitals or Lock wards, on a scale at all adequate to the requirements of the population. But even if such a system could be fully carried out, there is no reason to believe that it would have any appreciable influence in abating the general prevalence of contagious venereal disease. This was amply shown by the working of the Permissive Act of 1864. It was the main reason of the compulsory clauses of later Acts, and as shown by the evidence taken by the Royal Commission, the fact was perfectly well-known to those who have had experience in the treatment of prostitutes. These women are far too reckless of consequences, and the inconvenience which they suffer in the early stages of disease is far too slight to induce them voluntarily to seclude themselves for treatment. With rare exceptions they will not apply for admission until their disease has reached a stage which renders it impossible for them to carry on their vocation any longer; while, on

the other hand, the great majority will insist on departing as soon as their more serious symptoms are abated and no longer cause them any appreciable inconvenience. Under the Act of 1864, women still uncured constantly insisted on leaving hospital when they heard of the arrival of a regiment or of a ship being paid off. In the words of an experienced witness before the Royal Commission, the voluntary system must necessarily fail because 'the women will not come in soon enough, and will not stay in long enough.'

“To treat them as out patients, which is now done on so large a scale at the various hospitals and dispensaries, is a positive injury to the public health, for they are in the great majority of cases compelled to follow their occupation, the alternative being either to do this or starve; and the treatment only enables them to practice prostitution, and to disseminate disease with less pain to themselves and for a longer period than they would otherwise be enabled to do.”

From all this, it will be seen that the Government in legislating on this matter have acted with the greatest consideration, not to soldiers and sailors only, but to these wretched outcasts of society who were utterly unable to take care of themselves, and reckless of consequences both to themselves and others. The unreasonable opposition to these most excellent measures has prevented their general extension, but only for a time. The last report of the Association we have already named and alluded to, contains this paragraph:—

“Under present circumstances, we do not aim at so wide and immediate an extension of the Acts as before, but the case of certain seaport towns not subject to the Acts, which are known to be hotbeds of disease introduced by sailors of the merchant service of our own and of foreign countries, is so glaring, and is attended with such disastrous consequences, that we feel it our duty to call for the special interference of Parliament to repress the evil.”

This is judicious and reasonable, since all good measures have been effected in this country rather on the “slow and sure” than on the fast and uncertain principle. We will give a few particulars concerning Liverpool, one of the largest—if not the largest—seaport in the kingdom.

It possesses a population of half a million, and of this 50,000 may be reckoned as the number of seafaring men present at any time, this number being subject to great variations, according as the winds are favourable or the reverse. This population is contained in an area of 8 square miles. From the last report of the head-constable of the borough (Major Greig, C.B.), it appears that there are between 1,100 and 1,200 prostitutes “known to the police,” and upwards of 400 brothels. The only Lock hospital it possesses was built in 1884, and contained 50 beds, a number which was not considered then as at all excessive, and half the

beds are allotted to each sex. At this time the population was just one-third of what it is now ; and yet not one single additional bed has ever been provided, though Liverpool is a great stronghold of the opponents of the Contagious Diseases Acts, and large sums have been spent in such opposition. Years ago it was our painful duty to work in a district of the town where a large number of the objectionable houses and inmates enumerated above existed, and like the Committee of 1862, we refrain from entering into details. It would indeed be hopeless to convey any adequate idea of the filth, vice, and disease to be met with here, and it is difficult to see also how it can be met in any other way than by a strict special police regulation. We have all heard of the "sweet little cherub that sits up aloft, to look out for the life of poor Jack:" but where is the cherub, "alow or aloft," that looks after his health and morals ashore? We have, it is true, sailors' homes, missions to seamen, savings' banks, &c. but much more is wanted, and more good has been effected by river police, suppression of boarding-house crimps, and other land sharks. The present sailors' homes are too few, and require to be increased where practicable, and multiplied where this can be done. Again, counter-attractions to the "grog-shop" and "house of ill-fame" should be made in the shape of reading-rooms, where newspapers, books, prints, chess, back-gammon, dominoes, all of which sailors delight in, should be provided. Concerts, too, where the music and singing is of that class which will charm but not debase, would go far to render many an otherwise dull or debauched evening one of pleasant and rational enjoyment. Instead of the stereotyped two hours service on Sundays, there should be several short ones with hearty singing, and *short* sermons. Jack is not the utterly heathenish person he is supposed to be, and the roughest sea-dog has a religious spark in him which may be struck by a judicious hand.

But we are digressing from our more immediate subject, the prevention of disease. Provident dispensaries, where, for a reasonable sum the sailor could have medical advice and medicines, ought to be established near all sailors' homes, this would, if properly worked, be a source of income to some regular medical practitioners, while it would be of the most incalculable benefit to "Jack," protecting him from that most odious of all birds of prey, the "advertising quack." It is simply a disgrace to a civilised country that such should be allowed to prosper and flourish as they do. As an encouragement to any who may be disposed to try the provident dispensary system, we may mention that at one London hospital the out-patients' fees (one shilling each) amount to £800 a year. The expenses of a dispensary are very light, and all that is required is regular and punctual attendance on the part of the doctor, with strict attention to orders on the part of the patient.

For the unfortunates in all seaports we can see little hope from voluntary efforts ; dispensaries for them are out of the question, no other place but the hospital will suffice for their cure. Police supervision, regular medical inspection, and detention in hospital till cured, these, which of course mean the Acts, seem to us the only remedy. And when we see how many of their fallen sisters in Portsmouth, Plymouth, Devonport and elsewhere have been restored to decent life by these greatly maligned Acts, surely humanity itself cries aloud for their extension.

We availed ourselves recently of an opportunity of visiting Plymouth and Devonport, and of thoroughly acquainting ourselves with the working of the Acts there. Accompanied by the intelligent Metropolitan inspector who is stationed there, we made a tour of the streets by day and night, and saw all the improvements. We could not contrast Plymouth now with Plymouth formerly as it was our first visit, but we may say this much, we could scarcely believe we were in a seaport ; the streets presented such a remarkable contrast with those of ports generally. No crowds of drunken seamen and disorderly women round low publichouses ; no shameless solicitation nor foul language in the streets as we too often hear in this seaport, and as may be heard in others. The inspector assured us, and we have had ample confirmation of it, that formerly one could hardly walk the streets without being annoyed, or even insulted by the very lowest of females. We learned also that, whereas the number of such was formerly 1,700 in the three towns, it has been reduced to 400. We saw the Royal Albert Hospital, where formerly the 162 beds were all fully occupied with the worst possible cases ; now 48 beds is the average number required, and several large wards are empty. We were assured by the hospital authorities of the most gratifying results of the endeavours made to reform patients, which is thus summed up in the annual report for 1874 :—

“No woman ever enters the doors of the Lock Hospital who is not clearly and distinctly made to understand that the means of reformation are open to her choice. During residence in the hospital, unwearied efforts are made not only to cure physical ailments, but to cultivate religious feeling and promote reformation. In 1873-4, 78 women from this hospital entered homes, and as evidencing the disposition for reformation the average stay of these women in the homes was 183·78 days.

“The matron receives the cordial assistance in the hospital of several ladies who have weekly classes for work and instruction, and in the course of the year visits have been paid to the hospital by persons opposed to the Acts, most of whom have expressed themselves satisfied as to the groundless nature of charges made in ignorance of the manner which the Acts are administered.”

The seamen of the Royal Navy have been well cared for by the Admiralty, so have also the soldiers by the War Office, as regards the prevention of these contagious and preventible diseases. Is it not time for the Board of Trade to do similar kind offices for the Mercantile Marine and its seamen ? Now that attention is strongly drawn to unseaworthy ships, unseaworthy seamen should not be forgotten, and though this is a delicate matter and one which requires careful handling, we maintain that before any seaman should be allowed to sign articles and so gain the protection of the Board of Trade, that Board should have satisfactory evidence that he is free from disease and A.B. in a physical as well as nautical sense. There can be no injustice in such requirement. Attached to every shipping office there should be a medical officer, whose duty should be to examine and report as to the fitness of men to sign articles and proceed to sea. We know from what has come to our own personal observation, and we can confirm what was said by L.R.C.P. Lond., that many men proceed to sea "disabled," rather than "able" seamen; and it is no exaggeration to say that vessels are in danger of being lost from being weak-handed in consequence of this unseaworthiness. It is a very unfair bargain with the shipowner, and we throw out the suggestion in the hope that some influential firm will set the example and require from their crews a "clean bill of health." We venture to predict that the result would justify the experiment.

In conclusion, we may remark that we have sketched out a noble work for clergy, ministers, medical men, and philanthropists of both sexes, aided by wise State legislation. There is not an "outcast" of the most depraved kind who may not be rescued from her depth of degradation, nor the most reckless and degraded seaman who may not be brought to at least some self-respect and decency. Let it only be taken in hand with the same perseverance and energy that has been shown in providing for the seaman's safety by the noble lighthouse, the staunch lifeboat and fearless crew, the numerous appliances for saving life daily increasing, and there need be no fear that a blessing will not attend these efforts made for those "who go down to the sea in ships and occupy their business in deep waters."

Liverpool, December, 1875.

M.R.C.S. Eng.

THE SUEZ CANAL.

IN various articles which have appeared in this journal since the beginning of 1872, on the subject of the Suez Canal, we have strongly advocated that the management of this important thoroughfare should be placed in the hands of an International Commission similar to that which regulates the navigation of the entrance of the river Danube. Although a private enterprise, the Canal has become of so much importance to British Commerce that we are now more than ever interested in its satisfactory maintenance, and in there being every facility for our ships making use of it. The financial difficulties of the Company and some disputed questions as to the dues have agitated the shipping interests for some years; indeed, it was in discussing these questions in January, 1872, that we stated—

“We see no remedy for the present state of things and but little hope for the future, except in united action on the part of the Governments of those maritime countries and states whose ships use the Canal.”

And again, in September, of the same year—

“There is, so far as we can see, no way out of the present unsatisfactory state of things, but the purchase of the Canal and the appointment of a commission similar to the European Commission of the Danube.”

Considering the difficulties which have from time to time arisen, and bearing in mind the national feeling of pride which is evoked by the bold offer to pay on demand a gigantic sum in order to become the principal owner in a concern which the capitalists of other countries have hitherto failed to make financially successful, it is not surprising that the recent announcement that the Khedive of Egypt has sold to the British Government 176,602 shares in the Suez Canal for the sum of £4,000,000, has been received by the British public with feelings of gratification and admiration. The capital of the company being divided into 400,000 shares, Great Britain thus acquires nearly one-half of the property. We must say that to a great extent we share the general satisfaction at this popular *coup* on the part of the present administration; but we regard it merely as a means to an end. It is unreasonable to suppose that our Government have entered upon the matter as a mere speculation; we all understand that the transaction is one of political significance only. We trust that in accordance with the wise policy which has characterised our Government of late years, the opportunity will be taken to invite the European powers to join together in maintaining and regulating this most useful highway in such a manner that the ships of all nations shall be able to use it, and that the rules and tolls in connection with it shall be settled on a basis which shall be easily understood and generally satisfactory to all

concerned. Judging from a late speech of Sir Stafford Northcote, and from the fact of our Government having appointed a financial commission to proceed to Egypt, we entertain very sanguine hopes that the end in view is what we have advocated ; and we can only express our conviction that, if it is ultimately carried out, it will be of the greatest benefit to the shipping of our own and all other countries.

THE STEAMSHIP "DEUTSCHLAND."

LOST ON THE 6TH DECEMBER, 1875.

ANOTHER serious wreck has happened on our coasts. This time, a foreign trans-Atlantic steamship, and this time, also on an outlying danger. The *Schiller*, also a foreign trans-Atlantic steamer (see *Nautical Magazine* for June, 1875, p. 516), was lost on the Scillies, in May last, with 312 lives, and now the *Deutschland* has been lost, on the Kentish Knock, with many more than 50 lives out of about 220 on board. Both casualties happened when within signalling distance of help, but in both cases the signals of distress were not observed, or acted on, until numbers of the passengers had perished.

The lessons once again emphasised by the loss of this steamship are :—

1. That sound, strong propelling machinery is of more value in preventing loss of life than boats, rafts, life-belts, and all other similar appliances. On this point we would refer our readers to our remarks on appliances for saving life at sea, contained on pages 185 *et seq.* of the *Nautical Magazine* for 1874. These remarks have been entirely substantiated by the experiences in this case.
2. That it is folly to expect that life can be saved in winter in emergency by boats and life-belts.
3. That life is lost mostly in surveyed and certified ships.
4. That so long as owners of steamships decline to carry proper means of making signals of distress under all circumstances, so long will crews and passengers in distress fail to receive assistance even though it be comparatively near at hand.

It appears from the evidence that the *Deutschland*, under the command of Brickenstein, left Bremerhaven on Saturday, and, anchoring in the river owing to heavy weather, left the Weser on Sunday morning, December 5, for New York. There were about 107 emigrants with other

passengers, and 99 crew. It was about 9.30 a.m. on Sunday morning when the ship left the river, the wind blowing from the north-east pretty freely, with snow falling at intervals. The wind increased to a heavy gale by night time, with a heavy snow-storm. There appearing to be some doubt as to whether the captain's reckoning was correct, soundings were taken every two hours, and between 4 and 5 a.m. the lead was cast three times. From 4 a.m. also she went half speed. At half speed she would be going about $9\frac{1}{2}$ knots an hour. The lead was cast about five or seven minutes before the ship struck, and found 17 fathoms of water. Soon afterwards, at a little after 5 o'clock, breakers were seen. The vessel had no sails set, she was under steam alone. There were at the time four look-out men on the bridge and two in the bows, but the weather was so thick that they were of little use. When the last cast of the lead was taken, the vessel was stopped, and was merely drifting with the wind. She was thus sent ahead for about a minute or two, and then breakers were seen. The captain immediately ordered the steamer to go at full speed astern, but had hardly given the order when the screw broke, and the vessel was left at the mercy of the wind and waves. Then she struck on the sands, it being at that time nearly tide. The captain at once ordered the boats to be cleared away and high rockets to be fired. He did not order blue lights to be burnt, as he thought, they being pilot signals, were illegal as danger signals. The ship touched the sand twice slightly before she became fixed. The ship had life-belts for more than 500 passengers. He ordered an officer to go below, serve out the life-belts, and see that every passenger put one on. One of the boats was cast off or was dashed away by the sea soon after the ship struck. Three others were stove in. No help was sent to the ship from the time she struck at 5 a.m. on Monday morning till 10 a.m. on Tuesday morning. As soon as the vessel struck she broached to and was left broadside on in the trough of the sea. Several people were at that time washed overboard. It was a clear day on Monday, though the sea was high. There were vessels passing, and such signals were made as it was possible to make, with pistols and otherwise, but none of the passing vessels answered. After daylight on Monday they did not fire any guns of distress, as the powder was wet, and they could not fire. On Monday night rockets were again sent up, but no help went to the unfortunate ship. About 9 a.m. on Monday, cargo was thrown overboard from the fore-end of the ship to try to lighten the ship, and the crew were at that work till Monday afternoon at 5 p.m. They had previously set the foresail to try to force her through the breakers. Afterwards, when she got on to the top of the sand, they let go both anchors. The ship, after striking, was pretty high above water. The people were safe enough at first; some were on deck, some were below, and were tolerably

comfortable, though at times a wave would break over fore and aft. All that day the sea was heavy and the wind strong. About 2 a.m. on Tuesday the captain ordered the passengers on deck; and the aft-cabin filled with water about an hour afterwards. That was when the tide rose. All came up. Most of the people got up the rigging, but fell off, chiefly from cold and exposure, and some of the bodies were carried through the broken glass of the skylights into the cabin. The Liverpool tug-boat, of Harwich, which then went to the ship, took off 138 people, all who were then left alive. At that time the passengers were able to go below. When the vessel struck, the weather was so thick that the officers could not see the light on the Kentish Knock, and the fog-trumpet, with which the Kentish Knock lightship is furnished, was either not sounding, or if sounding, was not heard. The captain was on deck when the vessel struck, and had been there all night. Rockets were fired at 5.15 a.m., on Monday, directly after she struck; but answering signals were not seen (from the Sunk and the Cork lightships) until 6 or 7 p.m. on Monday evening. The cause of the loss of the vessel is obvious; but what is not clear is the reason why no assistance was rendered earlier. And why, when there is a light that burns brilliantly in water and by water, and is passed by the Board of Trade, it is not even carried, though it makes the statutory signal; and further how it happened that if the light of the Kentish Knock lightship was not seen, the fog-signal, which we presume should be used in thick snowy weather, was either not sounding or not efficient in the heavy snowstorm. These points will all no doubt receive careful consideration in the enquiry which is to be held.

OVER-INSURANCE.

WE need hardly remind our readers that the question of over-insurance of ships and freight occupied a large share of the attention of the Royal Commission on Unseaworthy Ships, as having a direct bearing upon that of unseaworthiness. The subject was introduced and pressed with great earnestness and ability upon the consideration of the Commission by Mr. T. H. Farrer, the Permanent Secretary of the Board of Trade, while eminent ship-owners, and some of the most enlightened underwriters and maritime lawyers in the kingdom, brought their collective knowledge and experience to bear in order to enable the Commissioners to arrive at a sound conclusion. The remarks of the Commissioners, so far as they relate to legislation on this subject, only serve to show the difficulties by which it

is surrounded. At page 7 of their Preliminary Report, the Commissioners say :—" The difficulty of limiting the amount insurable is very great, and the policy of such a course is doubtful. It is almost impossible to accurately fix the value of a ship, and any attempt to limit the amount of insurance in proportion thereto would be impracticable." Further information induced the Commissioners to modify this opinion. " The present system " (of marine insurance) " tends to encourage carelessness and to increase disasters. It allows considerable deviation from the fundamental principle of indemnity. It not only relieves the shipowner of all pecuniary risk, but even enables him to derive a profit from shipwreck. In other cases it deprives the shipowner of an indemnity when he ought to be protected."—Final Report, pp. 11-14. The Commissioners came, therefore, to a distinct conclusion as to the danger and mischief of over-insurance, and they did not hesitate to suggest that policies should be void when the loss of a ship is occasioned by the negligence or default of the owner or his agents. But beyond this they refrained from recommending remedial legislation—Firstly, because they thought the Legislature " should not interfere with contracts made by persons who are capable of taking care of their own interests ;" secondly, " because it is desirable that the law of insurance should be, as far as possible, the same amongst all commercial nations," and, therefore, before legislating, it would be important to obtain information as to the practice of foreign States in this regard ; and, thirdly, because " any alteration in the law of insurance should be made with the greatest care, lest the insurance business be driven abroad." The Government, with the fixed intention apparently of promoting legislation on this subject, have lost no time in obtaining from the nine leading maritime States their views on the law and practice of marine insurance. Without going into details of the replies received, it is sufficient to state that by the marine insurance law of all the countries in question the policy of insurance is regarded as a contract of indemnity only, and must not be converted into a source of profit to the assured. It is true, however, that in France, as in England and the United States, valued policies, whether on ship or freight, cannot be opened except on an allegation of fraud. So far, therefore, as the establishment of the general principle on which marine insurance rests, and no doubt ought to rest, the Government, in urging legislation, proceed on safe ground. But there are difficulties which present themselves in the way of legislation on this subject, and which suggest the probability that, whatever law may be passed for regulating marine insurance, it may be evaded if both parties to the contract are so inclined.

The prospect of approaching legislation on this important question has produced a good deal of intelligent criticism, and we may specially refer

to an article in the *Law Magazine* for November, and to another in the *Economist* of the 20th of that month, as affording good specimens of the able manner in which this question is handled by leading members of the press. One omission, however, we observe in the arguments of our contemporaries—they both point out and dwell upon the interest which the shipowner has in over-insurance in ship and freight, but they omit to notice the interest the underwriter has in maintaining the present system of valued policies, and the difficulty which the existence of that interest presents to any effective change in the present law. Mr. Justice Willes, with that sagacity which distinguished all his remarks on the operations of commercial law, hit this point in his well-known “Memorandum on Valued Policies,” written in 1867. “It may be questioned,” said that learned judge, “whether any alteration in the English law would be operative, unless the underwriters were sincerely disposed to aid in giving it effect, and it may also be questioned whether they do not think it more for their interest, as increasing the amount of premiums, that the present system should continue.” Mr. W. W. Rundell, Secretary to the Liverpool Underwriters’ Association, was one of the witnesses examined before the Royal Commission:—“The proposal to limit insurance to a fixed proportion of value,” he said, “is considered impracticable by underwriters. I see no chance of making it work.”* Mr. Rundell’s views were sustained by every subsequent underwriter examined, who contended, one and all, that to open values would be to involve both parties to the contract of insurance in profitless litigation. No doubt, as Mr. Justice Willes has said, the increase in the amount of premiums is a potent consideration with the underwriters in supporting the present system of insurance; but it is not the only one. There are also the considerations of general and of particular average. Captain John Fenwick (of Messrs. John Fenwick and Son), examined before the Commission, said:—“Underwriters like a ship to be over-valued, because then a partial loss does not so easily reach 3 per cent. of the sum insured, below which proportion they are not liable, and because it lightens each man’s share in a general average; besides, it adds to their premiums.”† “I am aware,” said Mr. Larnport, the eminent Liverpool shipowner, “that underwriters like a high valuation, because advantageous to them in a case of general average.”‡ The reason in both cases is obvious. By the memorandum contained in every Lloyd’s policy, the ship and freight are warranted free of average under £3 per cent., unless general, or the ship be stranded. If, then, a ship be insured for £10,000, the

* Unseaworthy Ships’ Commission, Minutes of Evidence, vol. 1.

† Unseaworthy Ships’ Commission, Minutes of Evidence, Qs. 870-2, 997, 998.

‡ *Ibid.* 5738-42.

damage must, under this warranty, amount to £800 before the underwriters can be liable, whereas, if the property be valued in the policy at £5,000, they would be liable for damage if amounting to £150. Then as regards general average, where the three interests of ship, cargo, and freight contribute in a common ratio for a loss occasioned for the common benefit—if the loss is represented by, say, £1,000, and the ship, cargo, and freight are valued respectively at £5,000, £10,000, and £1,000, it is obvious—that whatever the percentage which each interest would pay on adjustment, it must be twice as much as if the value were respectively £10,000, £20,000, and £2,000—the amount of the loss being in this example a constant quantity—besides which the number of underwriters increase with the values insured, thereby diminishing the liability of each particular underwriter. The insurer has, therefore, an inducement as strong if not stronger than the shipowner in over-insurance. His trade is insurance, it is his daily business, and is, of course, based upon some calculation of profits. What he gains the shipowner and the merchant must pay. Over-insurance means increased premiums, and, as we have shown, decreased liability of the underwriter in cases of average particular and general. It need not be wondered at therefore that the underwriters should be favourable to the existing state of things, and should deprecate any change in our law of insurance. Opposition, however, to an amendment of the existing law on the part of underwriters, or of the assured, or of both combined, would furnish no sufficient argument against such an amendment if the Legislature is satisfied, as the Royal Commission undoubtedly was, that over-insurance, by making the assured indifferent to the safety of their property and even occasionally giving them an interest in its loss, has a direct tendency to increase maritime disasters. Assuming that this is so, let us see what are the remedies proposed. The writer in the *Law Magazine* proposes that the underwriter should, in all insurances on ship or freight, be allowed to open the policy, so as to prove the actual value of the subject matter of the insurance. “Let,” he says, “the admitted principle that a marine policy is only a contract of indemnity have its full effect, and let the underwriter be liable in all cases, for no more than the actual value of the ship or freight insured, on certain definite and fixed principles.” “An underwriter,” says the writer in the *Economist*, “might be allowed to open the valuation of policies on hulls of ships and be entitled to succeed if the excess is considerable or material. In the case of a policy on freight, an owner might be allowed to receive his gross freight after deducting what may have been advanced to him before his ship sailed, and the wages, port charges, and other expenditures not incurred in consequence of the casualty; and in cases of ships going in ballast to another port, either seeking a freight or to take up a charter,

the owner might be allowed to recover by insurance the actual expenses which such a voyage had entailed upon him up to the time of loss." Now, it must not be forgotten that the Act prohibiting wagering policies, (19 Geo. 2, Cap. 37) was passed for the express purpose of giving effect to the principle of indemnity in policies of insurance. It renders null and void all assurances, "interest, or no interest, or without further proof of interest than the policy, or by way of gaming and wagering, or without benefit of salvage to the insurer"—this is the wording of the statute. But it is the fact that the passing of this Act was the immediate and direct cause of the system of valued policies. There can be no doubt that a policy which covers a ship in excess of her actual value when the contract is entered into, or at the time of loss, or under which a shipowner recovers a larger amount in the name of freight than the freight at risk, is, as to that excess, a wager policy and a contravention of the existing law. But the valued policy does this. Yet these policies have, since the time of Lord Mansfield, been upheld by our Courts of Law. The valuation must stand, and the parties are estopped from altering it, unless *mala fides* is alleged, and this, if proved, simply voids the policy; in that case, it was never a contract. How is this? Because both parties to the insurance contract have conspired to defeat the law. "The things that have been are the things that shall be." We fear, if a law were passed to-morrow enabling the assurer to open the policy, that by means of "honour policies," or by some other contrivance, a way would be found to evade its provisions. Again, the sagacious warning of Mr. Justice Willes comes back upon us, that any change in our law of insurance must depend for its effect upon the sincere co-operation of the underwriters. The deep interest they have in the maintenance of the existing state of things, forces the conviction that any amendment in the law, designed to protect the principle of indemnity, must be framed in well-considered and imperative terms, and even then there will be no security that it will prove effective. We firmly believe that shipowners, as a body, do not value highly the opportunity which the law presents for over-insurance. It means to them increased expenditure, and, in these days of keen competition, an owner's insurance account is sometimes a very serious item in the cost of carrying on his business. Any arrangement which would tend to reduce this cost would be most welcome to owners of shipping property, and a very satisfactory exchange indeed, for the chance of selling a ship to the underwriters for a third more than her value, or for a similar chance of recovery in the name of freight, which was never at risk. If, then, there is likely to be any opposition to a legislative proposal to open policies of insurance (an amendment in the law which, if it can be carried out, will be, undoubtedly, beneficial); we do not believe it will come from the assured, for the simple reason

that they would gain by the inevitable reduction in the cost of insurance. But whatever change may be effected in the law relating to the opening of values, it will not produce, even with the aid of underwriters, the desired result so long as our mode of litigating insurance claims remain unchanged. "Insurance trials," say the Commissioners in their Final Report (pp. 11-14), "before a jury are extremely unsatisfactory; a judge assisted by two assessors would be far better." A reform in this respect would unquestionably secure the support of the underwriting bodies. It is very difficult, indeed, to obtain a verdict for the defendants in an assurance case, even from a special jury, unless where there is clear evidence of concealment, misrepresentation, or some other form of *mala fides*. Juries seldom understand these cases; they go upon the broad principle that there has been a contract, and a consideration, that the contingency insured against has occurred, and that the underwriter is bound to pay. We quite agree that a competent commercial lawyer, assisted by competent assessors acquainted with the practice of insurance and the operations of the carrying trade, would be a far more satisfactory tribunal than any now existing; and we should hope that, in any proposal to amend our law of marine insurance, this suggestion of the Commissioners will be duly considered. To sum up our views, as shadowed out in the preceding observations,—We have no doubt that the practice of over-insurance has a direct tendency, in so far as it produces neglect or indifference on the part of the assured, to increase disasters at sea. We know of course that this practice is promoted and fostered by the rule of law which forbids the opening of valued policies. We do not doubt that legislation on this subject is demanded; but we conceive that to be effective it must have the cordial co-operation of the underwriters, who are more concerned than the assured in the proposed amendment; and we are quite sure that any change in the law of marine insurance would be incomplete and defective which does not provide a special tribunal for the trial and settlement of insurance claims. With such a machinery the difficulty of adjusting values when opened (now almost insuperable), if it would not disappear, would be readily overcome, and the principle of indemnity would become in practice as it is in theory—the foundation of the contract of insurance. We know that in this matter we are in accord with the leading maritime states. We trust, therefore, that the approaching session of Parliament will witness a resolute attempt on the part of the Government (whom we believe to be quite in earnest in this matter) to amend to this extent, at least, our law of insurance—always bearing in mind that there are two parties to the contract. So shall they, in the language of Blackstone, "aid in advancing the great system of marine jurisprudence, of which the foundations have been laid, by clearly developing the principles on which policies of insurance are founded."

ATLANTIC STEAM FERRIES.—No. V.

THE GUION LINE.

THE Guion Line of steamships has the reputation of being the first of the Atlantic steamship companies trading between Liverpool and New York which is entirely the result of American enterprise. Attempts, as we have seen, had been made from the American side of the Atlantic, but the failure of the Collins' Line was, perhaps, sufficient for some time, at least, to damp the spirits of the Americans. The Guion Line owes its origin to an American gentleman, Mr. Stephen Barker Guion, of Liverpool, and also one of the members of the firm of Messrs. Williams and Guion, of New York. The proper name of the company is the Liverpool and Great Western Steamship Company (Limited), but the undertaking is in very few hands, and its shares are not placed either upon the home or the American Exchanges. Practically speaking, Mr. S. B. Guion is the line, which is commonly known by his name. The American connections of the line have no doubt helped greatly towards its success, and it has, at all events, been free from the damaging effects of those sensational stories of emigrants' miseries which are continually appearing in the New York papers, and which are understood to be the results of the imaginations of Yankee reporters who had been unable to obtain "black-mail" from the unhappy victims of their artifices. The Guion Line has been free from these harpies, who, if they have no other virtue, have still left in them some sense of patriotism even in their swindles.

The position of the Guion Line with regard to the trans-Atlantic emigrant passenger trade is not a little curious. In the beginning, one branch of its business was to carry on the emigrant business for the Cunard Company and the National Company; that is to say, it used to conduct the emigrant passenger business for these companies before they took it under their own control. In point of fact, Messrs. Guion were the pioneers of the emigrant passenger trade which is now so profitable, and which they were the first to organise and to concentrate in the port of Liverpool.

More than a quarter of a century ago the firm of Williams and Guion owned "The Old Black Star Line" of sailing ships, which were engaged in the conveyance of emigrant passengers from Great Britain to the United States. The trade commenced by this firm developed so rapidly that it was found necessary to have a representative branch in Liverpool, which resulted in the establishment of the well-known and much respected firm of S. B. Guion and Company. The valuable effects of this step were very soon apparent. Mr. S. B. Guion so completely

identified his name with the Old Black Star Line of sailing packets that they soon became known as the Guion Line. The fleet at that time consisted of some 20 of the fastest sailing vessels trading between this country and the United States. The emigrant traffic carried on in these packets will even in these days be regarded with wonder. These Guion sailing ships were in the habit of carrying from these shores not less than 1,000 emigrants per week in the summer season, a figure which if only continued throughout the year, would represent the population of a second class English borough, or of half a dozen American cities. It was from this great emigrant trade so created, that when the sailing ships came to be superseded by steamers, the Guion Company had so splendid an opportunity of founding their successful line of steamships.

When the Guion Company first determined to go into the steam trade it found that it had to deal with at least three successful competitors. This was in the year 1863, when it had been discovered that the possibilities of the steam trade between Liverpool and New York were so great as to justify commercial men in embarking in it to any reasonable extent. It was in the year 1863 that Messrs. Guion undertook the passenger and cargo agency for the first steamers which were placed upon the National Line. For three years—namely, from 1863 to 1866 they utilised all their experience and influence in the emigration trade on behalf of the vessels of the National Line, which, when it took over the business into its own hands, found a very substantial emigration business created ready for it. As before stated, the Messrs. Guion had acted in the same way with regard to emigrant passengers for the Cunard Company, which has now its own department for the conduct of this particular business. The Messrs. Guion may, therefore, claim all the credit accruing from the organisation of the emigration business of the Cunard and the National Companies. As a matter of fact, Messrs. Guion, with their sailing vessels, were first in the field, and although it may seem to outsiders that to carry on an emigration shipping business is a very simple matter, it is not so in practice. Those who engage in it must learn from the experience of those who have gone before, and thus it was that Messrs. Guion became what may be called the nurses of one of the most important branches of the business of the two companies named. The experience Messrs. Guion had derived from their sailing vessel emigration business was invaluable to those wishing to engage in the same kind of traffic, but at the time entirely unacquainted with the proper method of its working.

It was not to be supposed that a firm like the Messrs. Guion, with their experience and traditions, were long in finding out that steam was the master of the trans-Atlantic trade, and without delay, therefore, they applied themselves to the costly project of creating a line of

steamships for themselves. They accordingly put themselves in communication with Messrs. Palmer, the famous shipbuilders of Jarrow, and gave at once an order for four of the best and swiftest steamers it was possible at that time to construct. When it is remembered that the cost of a single trans-Atlantic steamer runs into tens of thousands of pounds, the boldness of an order for four of these vessels at once will be seen. One of the stipulations with the shipbuilders was that the vessels were to be made of uncommon strength fit to encounter any sort of weather, and it must be acknowledged that the vessels of the Guion Line fully carry out the design of the owners and of the builders. The determination to go into the steamship trade was, it may be mentioned, coincident with the merging of Messrs. Guion, as a private firm, in the Liverpool and Great Western Steamship Company (Limited).

The first vessel which was placed upon the Guion Line was the *Manhattan*, which left the Mersey on its pioneer voyage to New York in the month of August, 1866. To the *Manhattan* quickly succeeded the *Minnesota*, which was taken into service in April, 1867. The *Minnesota*, a vessel of the same tonnage as the *Manhattan*, was followed by the *Nebraska*, a fine vessel of 8,000 tons, which commenced running in the month of June, 1867. The fourth vessel of the line, the *Colorado*, was added in June, 1868, and before two years had elapsed, so great was the success of the company, that it had been increased by four other vessels—the *Idaho*, the *Nevada*, the *Wisconsin*, and *Wyoming*—each of 8,100 tons register. Since that time there have been built for the Guion Company, the *Dakota* and the *Montana*, of 8,500 tons, the *California*, of 8,800 tons, and the *Utah*, of 8,400 tons. The present fleet of the Guion Company consists of :—

		Tons.		Horse-power.		Captains.
<i>Wyoming</i>...	...	8,100	...	900	...	Price.
<i>Wisconsin</i>	...	8,100	...	900	...	Freeman.
<i>Idaho</i> ...	...	8,100	...	600	...	Guard.
<i>Nevada</i> ...	...	8,100	...	500	...	Jones.
<i>Montana</i> ...	...	8,500	...	1,000	...	Beddoe.
<i>Dakota</i> ...	...	8,500	...	1,000	...	Forsyth.
<i>Utah</i> ...	...	8,400	...	1,000	...	Beverley.
<i>California</i>	...	8,800	...	1,000	...	Marshall.
		<hr/>		<hr/>		
		26,100		6,900		

The last additions to the vessels of the Guion Line are truly magnificent specimens of British shipbuilding. One of the most notable features of their construction is, that they have their saloons placed amidships, instead of having them fitted up aft, an improvement which it is claimed will have the effect of minimising the pitching and

rolling motion, the theory being, of course, that the centre of the ship must necessarily be the spot in which the motion is the least. Another peculiarity of the Guion steamers is, that they have their saloons upon the upper deck, with the cabins directly communicating with them. This is an arrangement which is greatly esteemed by passengers, especially those who are not able to feel themselves quite so comfortable on board ship as persons bred to the sea. The two latest additions to the Guion Line, the *Montana* and *Dakota*, have made some very fast passages, the average time of their runs being close up to the crack passages of the Cunard, Inman, and White Star liners.

The Guion Company with its fleet of eight powerful vessels maintains a weekly passenger service between Liverpool and New York, the steamers leaving Liverpool every Wednesday and New York every Tuesday. It was, we believe, the design of the company at once to establish a bi-weekly service, but the unfortunate depression which has fallen upon the American trade has caused the temporary postponement of this project. It is, however, tolerably certain that upon the first renewal of trade the Guion Company will further develop its resources, and helped as it is by very powerful connections upon the other side of the Atlantic, it will have the fairest chances of success. The company has the *prestige* belonging to the carriers of the United States' mails, and until recently were the only recognised American owned steamship line in this country. Commencing their career in 1866, the Guion Company have in the comparatively short space of nine years taken a place in the first rank of the steamship companies of Liverpool.

It has been already remarked that the Guion Company had a splendid advantage in their passenger organisation and connections coming down from the old sailing ship times, and it is at this day remarkable for the number of steerage passengers it carries. From first to last, during the career of the company as a steamship company, not less than 800,000 passengers have been carried, and it is a remarkable testimony to the character of the vessels and the splendid management of the line, that there has been no loss of life from accident. The great strength and solidity of the steamships form a guarantee against disasters of the ordinary kind; but these features do not militate against the speed of the vessels which frequently make the passage under the 10 days' limit. The chief feature of the Guion Company's management is native pluck and energy, and it would be difficult indeed to find anywhere a gentleman more able, experienced, and efficient than Mr. Ramsden, in whose hands the management of the passenger department has so long been placed.

DIRECT-ACTING SPRING SAFETY-VALVES.

ON PROPORTIONING THE HEAD OF VALVE TO OVERCOME THE INCREASING RESISTANCE OF THE SPRING.

TAKE a 3" valve, 85 lbs. pressure; load 600 lbs. This corresponds to a spring of $\frac{1}{4}$ " square steel 2" inside diameter $18\frac{1}{2}$ coils, and $11\frac{1}{8}$ " long. This spring deflects 1" with its load on it, and as the valve is required to lift $\frac{1}{4}$ th of its diameter—viz., $\frac{1}{8}$ ", it is evident that $\frac{225}{8} = 75$ lbs. equal the force necessary to be applied on the head of valve in order to keep it up from its seat; and as 12 lbs. is the force per \square " on the head at the instant of closing, $7\frac{1}{2} = 6.25$ square inches equal the area of the concentric head, on which the steam acts and corresponds to $4\frac{1}{8}$ " diameter. But sometimes the pressure on head of valves falls to 9lbs., and $7\frac{1}{2} = 8.333$ square inches equal area of head of valve.

ON THE PROPORTIONS OF AREA OF SEATING AND STRICTURE ORIFICES.

Let D = diameter of valve, and

D' = diameter of stricture orifice.

Let O = opening at narrowest part of seating orifice, and

O' = opening at narrowest part of stricture orifice.

Let R = relative volume of internal pressure, and

R' = relative volume of steam in concentric chamber.

Let V = velocity of steam due to internal pressure, and

V' = velocity of steam in concentric chamber.

Let R'' = relation of circumference to diameter.

Let r = area of seating orifice, and

r' = proportion of area of stricture to seating orifice, and

a = area of stricture orifice.

Then r will be $= D O R''$, and

r' will be $= \frac{R' \times V'}{R \times V}$, and

a will be $= (r \times r')$.

These proportions are the secret and soul of the valve. Let them be disturbed either by increase or decrease, and the efficiency of the valve will fall; and such is the condition to which this valve has been brought, that when applied as the Board of Trade rule prescribes, the valve will rise at 60 lbs., admit of no accumulation, and close again at 60 lbs., the

same pressure at which it rose. I cannot make it speak, but I can make it play beautiful rhythmic music. "Make me free in the seating, and about the spindle, poise me true on my centre," says the valve, "and as the steam rushes from imprisonment in the boiler to enjoy the freedom of air at the top of the waste pipe, winding its spiral and wave-like motion through my double orifice, you will hear my melodious voice singing the song of molecular freedom." Indifferent must be the man; cold the heart, and dead must be the soul of him who could not admire the grandeur of the structural "idea" of this valve.

And now, Mr. Editor, as I pass from my own valve to that of other valve mechanism, let me say a few words of gratitude. To the mental intrepidity of that most unwearied of all Government officials, Mr. Thomas Gray, I am indebted for the wisdom of his councils and the kindness of his words, always bringing encouragement in their train. From first to last they have stimulated me to produce the valve in its present state of perfection. Shipowners also are indebted to him for the sagacity he displayed by the rapid manner in which he adopted a new and novel design, conferring a large benefit on steamship owners; and to the chief surveyor, for he also granted my very first request. To yourself, also, Mr. Editor, are we all indebted, for you were early in the field with your offer of £100 prize, stimulating the inventive faculty of the country to produce a safety-valve, which would help, in some degree, the depressed state of the shipping interest; although, owing to a small mishap of the fitter, I did not get your prize, a burr on the spindle produced by the key which receives the padlock, being driven in from the wrong side of the taper, thereby creating friction on the spindle, by burring up the top edge of the key way, and preventing the valve from rising and falling freely. This it was which made the arbitrators say something was sticking inside; but I was confident I had the best valve, because no living man had reasoned the subject in the same philosophical spirit, and that the trade of the country would fall into my hands.

THE SAFETY-VALVE AS IT OUGHT TO BE LOOKED AT BY THE BOARD OF TRADE.

No pair of ordinary safety-valves, at or about 60 lbs. pressure, of the dimensions prescribed by the Board of Trade rule, and loaded direct by a spring of the necessary strength to secure safety, will carry away all the steam generated by the fires, without an accumulation of internal pressure, which materially affects the safety of the boiler. On this point, the shipowner can sit in his easy-chair, for the whole responsibility of fixing the limits of pressure in the boiler is thrown by the

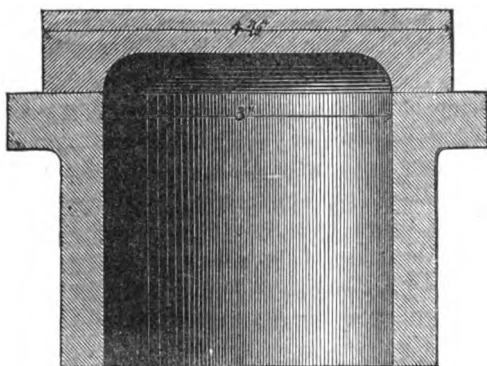
Legislature on the Board of Trade ; and its anxiety and care for the safety of the public, demand that it should know the exact nature of that responsibility. For that purpose, it must know the conditions of construction and quality of material of which the boiler is made. It can then tell what pressure that boiler can carry with safety, and it generally assigns that pressure ; and it purchases from the builder the responsibility of the safety of that boiler. The bargain is a fair and legitimate one on both sides. But if, after having got the responsibility fairly strapped down on the Board of Trade's shoulders, he (the builder) turns round and asks for 10 per cent. of accumulation, he pilfers from the Board of Trade "till," he takes that which is not his own, and for which he never made fair bargain. The scales no longer stand in the state of the balance, and he is no longer a just man of business, for he has given light weight to the Board of Trade. He has no more right to take 10 per cent. of accumulation or pressure than the grocer has to give 14 ozs. for 1 lb. avoirdupois. The behaviour of the two is identical, and were I the Board of Trade, I would not grant one ounce of accumulation of pressure. For, so long as there is a given pressure assigned, and given strength of boiler to withstand that pressure with safety, so long will the position of the Board of Trade on the one hand, and the builder of the boiler on the other, be clearly defined. But let accumulation be given or taken, and both parties have entered on the region of chance, where all is uncertainty.

ON THE SAFETY-VALVE AS IT OUGHT TO BE LOOKED AT BY A
STEAMSHIP OWNER.

Supposing the Board of Trade to allow no accumulation of pressure, or 10 per cent. of accumulation, so imperfect has the safety-valve been, that none would pass the test, even at the latter quotation, when loaded by a spring of the proper strength. But in order to pass muster with the surveyor, some engineers apply a very broad-faced valve (face $\frac{5}{8}$ broad) in order that when the valve lifts from its seat the steam will act on this broad face and help it up against the increasing resistance of the spring, and so keep the accumulation below the 10 per cent. at present allowed by the Board of Trade. (I say at present, because I trust it is only provisional on the part of the Board of Trade.) This is a most heartless valve—heartless, because it is made utterly regardless of the interest of the shipowner. This valve may just save its bones by having an accumulation of only 8 or 9 per cent., but it will lower the pressure in the boiler 16 lbs., or 26·7 per cent., when blowing off at 60 lbs., lowering the water in the gauge-glass about $2\frac{1}{4}$ inches before it will close ; and between the time of opening and closing, a ton weight of coal has been

blown out at the waste-pipe and lost to the shipowner. The valve is shown on its seat at Fig. 14.

FIG 14



Take for example a double-ended boiler 24 feet long and $13\frac{1}{2}$ feet diameter.

Let the chord of the arc formed by the junction of the water and steam space be 12 feet. Let the engines be suddenly stopped and the valve blow off at 60 lbs. It will reduce the pressure 16 lbs., or to 44 lbs. when it comes to its seat, and during this time the water in the boiler will have fallen $2\frac{1}{4}$ "; and since 1 lb. of coal evaporates about 8 lbs. of water, it follows that the number of pounds of water lost in the boiler, divided by 8, will represent the number of pounds of coal blown out at the waste pipe. With the dimensions we have selected it will stand thus, taking 62 lbs. of water to the cubic foot :—

$$\frac{24 \times 12 \times 2\frac{1}{4}}{12} = 54 \text{ cubic feet of water, and}$$

$$\frac{54 \times 62}{8} = 418.5 \text{ lbs. of coal blown from one boiler.}$$

If there be 4 pieces of boiler on board ship, then $418.5 \times 4 = 1674$ lbs. of coal is lost every time this type of valve rises from its seat. But this is not its worst phase on board ship. Supposing one or more of these valves to blow off when a ship has just got under way leaving England and bound for China, this valve would blow continuously to the end of the voyage, unless the engineer let his steam down to, or below 44 lbs. Nor have I gone minutely into its waste of coal, because in lowering from 60 lbs. to 44 lbs. the temperature of the whole body of water in the boiler has been lowered by 16 degrees, and this would add about 500 lbs. more weight of coal blown away every time this valve rose from its seat. It is a thorough "spendthrift;" but shipowners can prevent it by speci-

fyng to their engineer that 2 lbs. must be the greatest difference they will allow between the greatest and least pressures during the Board of Trade tests. This is not an impracticable quantity, for I am willing myself to be confined to one-half of it, but more than this is bad. If on the side of accumulation, it is unsafe, and if on the side of reduced pressure, waste of coal, the interest of the Board of Trade and the shipowner is indissolubly bound up together on this subject, that which is good for one is good for the other, and that which is bad for the one is bad for the other. Herein is wisdom. Let the Board of Trade say, "I will allow no accumulation;" and let the shipowner say, "2 lbs. is the limit I will allow between the greatest and least pressures," during the Board of Trade tests, and the safety of the public and the dividends of steamship companies will be benefited thereby, in addition to which all persons concerned will have peace and comfort.

This brings me now to consider the most wretched and worst of all forms of safety-valve mechanism—the lever and dead weight, this scion of the "evil one" let loose from his chains. He has been stalking through the ranks of engineers enrobed in lamb's clothing, but with the subtlety of the serpent in his heart. This diabolical instrument, this king of boiler bursters, this monster of iniquity, this wholesale murderer, dealing death and destruction to all points of the compass, enshrouded in the cloak of innocence, has been intrusted to guard the most dangerous positions to society, and under the same covering he has been admitted to take part in the deliberations of learned men.

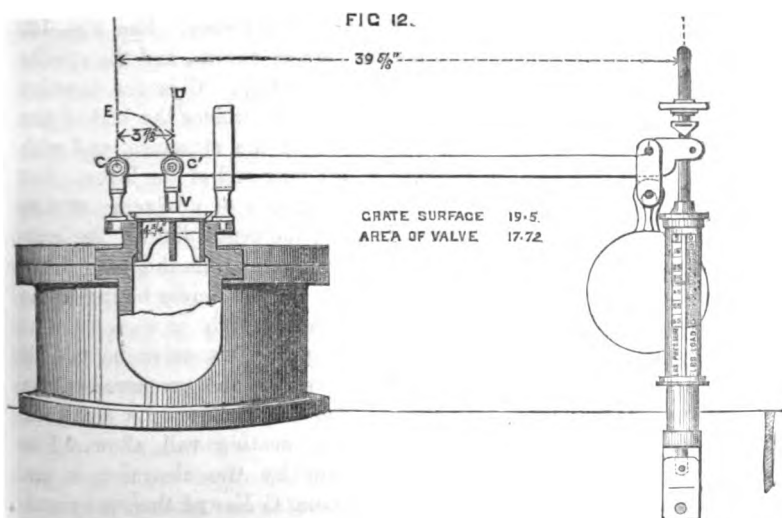


Fig. 12 shows this piece of mechanism as applied by the president of the Institution of Engineers and Shipbuilders of Scotland. There it stands with its fiendish hand over that hole in the boiler, proclaiming safety to all around, but death and destruction are in its heart. Beguiled by its fair external appearance of respectability, even engineers confide in its promises. But the eye of the thinking man is also upon it, and he sees through its now well-worn and threadbare habiliments, and descries the dry bones within. Let us examine it with its assumed robe of righteousness. Let us follow Mr. Robson, who called several eminent engineers of Glasgow and London to see the performance of this wolf in sheep's clothing in order to force it on to the Board of Trade.

"Oh! wad some power the giftie gie us
To see oursel's as ithers see us."

This valve, with the lever and dead weight, was loaded to blow off at 35 lbs. and rose to 46 lbs., closing again at 33 lbs., $31\frac{1}{2}$ per cent. of accumulation, difference between the greatest and least pressures, equal to 40 per cent. With the lever and spring at the end of it and the valve loaded to blow off at 35 lbs., under test the pressure rose to 49 lbs., or 40 per cent. of accumulation, and the president of the institution considers this good behaviour, and that no better need be expected or desired by the Board of Trade and Marine Engineers. This valve, containing 17.72 square inches, applied to 19.5 feet of grate, nearly double the size prescribed by the Board of Trade rule.

But this is the valve as seen with his clothes on. Let us unrobe him of his seeming righteousness and dissect the skeleton inside, which lies hid from the casual, but not from the mental observer. See Fig. 12. V is the valve, fitting in its seat by 4 feathers as shown, and the spindle is cast solid with the valve, both being one casting. C' is the junction of the lever and spindle, and C is the stud which receives the end of the lever, and which is a fixture immovably set in the structure, and with the weight or spring balance attached to the long end of the lever. Let us now get steam up until the pressure is capable of producing motion of the valve. The path of the valve is along the centre line of the seating and spindle, along C' D and is a straight line; while the path of the lever, which is rigidly bound to the valve at C', and rigidly bound to the structure at C, is a radial line C' E about the centre C.

Now I tell Mr. Robson that if the fittings of this valve be good it cannot possibly lift $\frac{1}{16}$ " from its seat, whatever be the pressure beneath it. It is a physical impossibility for it to lift higher from its seat than the play or clearance of the feathers in the seating will allow. The valve will just lift to a height represented by the clearance in the feathers forming the versed line of an arc along C' E, and the semi-chord

of the arc or the line of that portion of the arc C' E, which the clearance in the feathers allows the point C' to pass through, and if the valve be a very good fit in its seating it will not lift at all, but only shoulder up in one side. Because as soon as the play is taken up, the feathers are jammed in the seating, and the greater the power applied at the valve the harder does it jamb. Not all the power on earth could lift this valve. Smash it you can, burst the boiler you may, but lift this valve—never; for jammed it is, firm as the pillars of the universe and durable as the time of the force applied.

Sound aloud, Sir, the death knell of this valve; sign his death warrant, and read the funeral service over his unhallowed grave ere you again lay your head on your pillow to rest, and the blessings of mankind will attend you.

My next will be on the award of the Marine Medal to its President by the Institution of Engineers and Shipbuilders of Scotland for a Paper read in favour of the above wretched valve; also on the "Theory of the Constitution of Steam."


MOLECULAR VORTEX.

The Works of the "Ant" and the "Bee," Manchester.

NAUTICAL RACE.—A considerable rivalry exists between the two coal exporting ports of Cardiff and Newport. This is not, however, confined to the mere "deadweight" business: and extends to other and more "buoyant" projects. At the former place there is an annual pilot-boat regatta held in the Autumn. On the last occasion a Newport boat was fortunate enough to carry off the principal prize, and gave the good town another opportunity of "crowing" over its rival. This could not be borne by any spirited community, and a challenge for £100 a-side was made and accepted, for a race from the Monkstone to Lundy, covering a distance of about 140 miles. The boats matched were the *J. N. Knapp*, of Newport, and the *Anita*, of Cardiff. The boats started on the 6th October, at half-past ten o'clock a.m., and returned again on the 7th; the *Anita* at about half-past nine o'clock a.m., and the *J. N. Knapp* at eleven a.m. The tide was thus turned and Cardiff was made happy, and returned to its "black diamond" dealing in peace. The only reason which we have in alluding to the subject is to refer with pleasure to the hardihood and daring of the crews, and as evidencing the fact that there is a nobler ambition than mere money-grubbing existing at these "coaly" places. The race was made in the teeth of a gale of wind from the west, insomuch that half-a-dozen large steamers had taken shelter in Lundy Roads.

EMIGRATION TO SOUTH AMERICA.—No. III.

REPUBLIC OF URUGUAY.

HE Republic of Uruguay, contemplated as a field for European emigration, may, in some respects, be said to equal the Argentine Republic; its climate, although very similar to that of Buenos Ayres, is certainly superior to it, owing to its nearer proximity to the sea. Its physical aspects are more varied and picturesque than the uninteresting pampas of the Argentine; its soil is equally productive, and the whole of its territory, which is about equal in extent to that of England, is suitable for open-air work for Europeans.

Geographically, it is situated between the 30th and 35th degree of south latitude, and the 52nd and 58th of west longitude. Its southern coast forms the left bank of the River Plate, at the entrance of which is the City of Monte Video. Its eastern coast is upon the Atlantic; its western is washed by the Uruguay, which, with the River Plate, divides it from the Argentine Republic; and upon the north, it is separated from Brazil by no very remarkable barrier.

Ethnologically, as well as geographically, it is identical with the central provinces of the Argentine Republic, and it was discovered at the same time, in 1515, when it became a Spanish colony. It has since been subject to many vicissitudes, owing to its position as the political buffer betwixt the Spanish and Portuguese races, now represented by the Brazilians and Argentines. The Portuguese made serious and repeated attempts to annex it; in 1679 they founded the City of Colonia upon the River Plate, immediately opposite to that of Buenos Ayres; they also possessed themselves of Monte Video, which they evacuated in 1724. In 1778 they were driven out of Colonia, as it was thought, finally, and the province was made part of the vice-royalty of Buenos Ayres; in 1811 it declared its independence, and in 1814 the Spanish garrison of Monte Video capitulated. It then became one of the united provinces of La Plata, under the name of the "Oriental Province;" in 1815 it seceded and formed itself into an independent republic, which was short-lived, for it was invaded by the Portuguese in 1821 and annexed to that kingdom.

In the same year, upon the independence of Brazil, it was annexed to the Empire under the title of the "Cis-Platina Province." In 1827 the province successfully revolted, and in 1830 proclaimed itself independent, as the "Oriental Republic of Uruguay." In 1839 a war broke out betwixt it and Buenos Ayres, and the Argentine army invaded the country and besieged Monte Video; the siege lasted nine years, and reduced the State to ruin and desolation. In 1865 the revolution of General Flores

resulted in Brazilian intervention ; President Aguirre was expelled, and in 1868 General Flores was assassinated, since which period, in common with its sister republics, it has been a prey from time to time to military Condillos.

It is they who have furnished an excuse for foreign interventions, sometimes even invited by them ; it is they who have ruined the credit of their country ; it is they who have turned this garden of South America into a jungle of tigers ; and until the Government is sufficiently supported by public opinion to suppress them with inexorable severity, the country will enjoy neither peace nor prosperity at home, nor credit abroad, and emigrants will gradually cease to avail themselves of the great natural advantages possessed in so high a degree by it. Clemency is doubtless an admirable quality, but justice is a better, and consideration for a criminal is too often indifference to his victim.

But notwithstanding all its trials, and a certain air of provincialism which hangs about it, notwithstanding the great disadvantage of being a small State between two powerful and jealous rivals, it has progressed in a wonderful degree. This is to be attributed to the great attractions which it possesses for emigrants. The capital, Monte Video, the first port at which they touch in the River Plate, is an extremely beautiful town, and although not one half the size of Buenos Ayres, much more likely to encourage people in search of a home to select it. This also applies to the country, which is undulating, well wooded and watered, forming a very favourable contrast to the dreary and timberless pampas of Buenos Ayres. It has also an invaluable superiority over its rival in the quantity of stone abounding in the country for building purposes, or for making roads. Like Buenos Ayres, Monte Video owes its architectural beauty and the floriculture of its quintas to its Italian immigrants, and the decoration of its tasteful shops to the French, who abound in great numbers within the city.

It possesses great commercial advantages, owing to its being placed so near the mouth of the Plata, and although by no means a good port, it is better than that of Buenos Ayres.

In the following statistics, it must be borne in mind, or they will give a false impression, that all vessels "seeking," call at Monte Video, and almost every vessel bound to any other of the ports of the La Plata also call there for a pilot, for orders, or for provisions, and being all registered, as vessels coming to the port, the tonnage returns of Monte Video appear to equal those of Buenos Ayres.

The returns of trade for three years were as follows :—

			Imports.		Exports.
1870	...	...	£8,000,668	...	£2,555,810
1871	...	...	2,972,849	...	2,666,844
1872	...	...	8,771,944	...	8,097,906

showing an increase of 26 per cent. in imports, and 22 per cent. in exports in three years; but this ratio has certainly diminished during the last two years, owing to the general depression of trade, and the social disturbances, which have brought the Republic to a most deplorable condition.

The exports in 1870 were:—1,087,834 cow hides; 55,842,000 lbs. of wool; 341,375 cwt. of jerked beef; 17,478 pipes of tallow; 9,844 bales of sheep skins; 5,749 seal skins; together with vast herds of live cattle, driven across the Brazilian frontier.

The fractional value of exports is said to amount to £8 per head of the population, a proportion equal to that of Great Britain, double that of the whole Argentine Republic, but less than that of the province of Buenos Ayres.

The tonnage visiting the port is very great, and has rapidly increased.

				Ships.		Tonnage.
1869	...	...	...	2,610	...	967,057
1871	...	...	...	2,876	...	1,494,577
1872	...	...	...	3,310	...	1,652,073

Exclusive of coasting vessels, the tonnage of different nations was in the following ratio:—English 45, French 18, Italian 10, Spanish 8, Brazilian 5, German 5, United States 4, Swedish 2, Various 3.—Total 100.

The value of property in town and country upon which taxes were levied, amounted to £72,242,200—that is, £50,000,000 for the country, and £12,242,200 for the city.

There are 9,989 houses of business in the Republic, of which 5,663 are in the City of Monte Video, the latter including 3 saw mills, 8 foundries, 93 factories, 13 tanyards, 53 brickkilns, 7 steam flour mills, and 9 saladeras, or slaughter houses; the remainder being in the country, notably the establishment for Liebigs' extract of meat, at Fray Bentos.

The income of the Republic for 1874 was £1,140,940, two-thirds of which is derived from the Custom House, the duties upon imports and exports averaging about 30 per cent. The expenditure for the same period was £1,656,795, about one-fourth of which was for war expenses. The taxation is so heavy that it exceeds £3 per annum for every man, woman, and child in the Republic. The public debt exceeds £8,000,000; upwards of one-half of the whole revenue was appropriated to the payment of the public debt, which, as will be seen, amounts to about £17 a-head for each of the inhabitants; but recent events have thrown the finances of the country into hopeless confusion, and the paying powers of the people appear to have been altogether overtaxed.

There are considerable facilities in the city for public instruction, though very much less attention is paid to this important subject than in the Argentine Republic, and the country districts are in this respect in an extremely backward state, thus—

In the city there are 58 public schools with 6,688 pupils.

„	„	54 private	„	„	8,360	„
In the country	„	74 public	}	„	6,738	„
„	„	59 private				

245

16,786

Only one line of railway is open in the Republic, the Central Uruguay, 135 miles from Monte Video to Durazno, and there are three others in construction, a branch of the above to Higueritas, 140 miles; the North Western from Salto to Santa Rosa, 110 miles; and one from Monte Video to Minas, 90 miles.

There is an immense contraband and transit trade carried on in the Republic; it is difficult to say what proportion of its trade is to be placed to these accounts, but a comparison of the exports from England, France, and Brazil to Uruguay, with the amount of imports from those countries, given by the Monte Videan Custom House, shows a deficiency of 40 per cent., which, if applied in the same proportion to its trade with all nations, presents the extraordinary deficiency of 80 per cent.; this is so incredible, that in all probability a large part of the deficiency must arise from the slovenly way in which the public accounts are kept, or from the dishonesty of the public servants.

There are three lines of telegraph: one from Monte Video to Buenos Ayres, 130 miles; one from Monte Video to Florida and Salto, 300 miles; and one (cable) from Monte Video to Chuy, on the Brazilian frontier, 300 miles.

The Government of the Republic is of the same form as that of the Argentine, namely, democratic.

This imperfect sketch of the statistics of the country will be sufficient for the information of intending emigrants. The number who annually land at Monte Video is about 20,000, but not more than one-fourth remain there; they pass either into the Brazilian province of Rio Grande, or the Argentine Republic. It is difficult to say why this is, unless it be the natural desire of a new comer to see all that he can before making his final choice, or that his imagination is excited by the stories which he hears of the vastness of the pampas, for notwithstanding the disadvantages I have named, the Uruguay has its own specific advantages over the Argentine; it has no Indians to make raids upon its borders, no beasts of prey, no dust storms, no droughts, and even the political drawback of its geographical position is somewhat counterbalanced by the facility afforded

to its transit trade betwixt the Argentine Republic and the Brazilian Empire.

Its soil is rich and fertile, producing grain, fruits, and vegetables in abundance; corn is now raised in such quantities, that it keeps a hundred steam and other mills in constant employment. Gold, silver, iron, and lead are found in the different ranges of hills, and the amount of horned cattle exceeds that in Buenos Ayres; sheep-farming is, however, in its infancy, but many English and German gentlemen who possess estates, have greatly improved the breed by introducing the finest races from Europe.

The following are about the rates of wages and house rent, in both the Uruguayan and Argentine Republics, and the cost of living may be set down as twice that of Great Britain:—

Rent—A good unfurnished family house	...	£500 a year.
„ A furnished sitting and bed-room	...	200 „
Board and lodging for a single man	...	120 „
Ditto ditto at Hotel	...	360 „
Clerks salary	...	£100 to 800 „
Farm servants	...	£30 to £50 with board.
Gardeners	...	40 „ 100 „
Coachmen	...	40 „ 60 „
Men cooks	...	50 „ 140 „
Footmen	...	50 „ 70 „
Bakers	...	40 „ 70 „
Shopmen	...	20 „ 200 „
Apothecaries	...	80 „ 150 „
Governesses	...	60 „ 100 „
Housemaids	...	80 „ 60 „
Nurses or female cooks	...	40 „ 80 „

Operatives per day:—

Carpenters	...	6s. to 12s. without board.
Blacksmiths	...	6s. „ 10s. „
Stonecutters	...	7s. „ 10s. „
Lithographers	...	7s. „ 20s. „
Watchmakers	...	8s. „ 11s. „
Tailors	...	7s. „ 11s. „
Saddlers	...	6s. „ 10s. „
Bookbinders	...	5s. „ 10s. „
Painters	...	5s. „ 8s. „
Shoemakers	...	4s. „ 7s. „

An operative would have to pay for a single unfurnished room from 30s. to £2 a month, and his board at an eating-house would cost him

from £3 to £5 a month ; if he had a wife to cook for him at home this last expense would be proportionately less, but his rent would be increased by the necessity for more room.

I need not repeat the observations which I have made regarding the Argentine Republic as a field for British emigrants ; they apply to Uruguay in equal force ; both countries are by nature, climate, soil, form of Government, and liberal laws, all that could be desired, and the former is doubtless destined to become a great and prosperous State. But I do not recommend British agricultural emigrants to go to either. They would be admirable countries for Spanish Basques and Italians, who have no colonies of their own to go to, provided always that steps are taken by the two Republics to secure life and property, otherwise, not even for them ; and it would be impossible for the Republics to obtain, or to desire, finer races of men to people their magnificent territories ; at the same time, I am far from dissuading British-trained engineers, artizans, or tradesmen from trying their chances in the Plate ; they can judge for themselves. Most of the objections which I have urged apply particularly to the emigrant or agricultural labourer, and, indeed, to all those who intend permanently to settle in the country at a distance from the chief cities of the Republics.

There remains but one other River Plate State, although it only comes under that category from the great estuary being the only means of reaching it by water, namely—

PARAGUAY.

The Republic of Paraguay is situated in the very centre of the continent, betwixt the 22nd and 27th degree of south latitude, and the 55th and 58th degree of west longitude. It is a small but fertile country, having an area of about 90,000 square miles, and a population barely exceeding 100,000.

The exports from Paraguay are yerba-maté, tobacco, fruits, timber, hides, and bark for tanning ; the former is its chief production, and is extensively used by all the inhabitants of the Platine States ; it is infused, after the manner of tea, in small ornamented gourds, and sucked through a silver tube ; the taste has to be acquired by foreigners, but young men soon become accustomed to it, as it is the national vehicle for flirtation. The extent of its consumption may be imagined when, of £888,780, the value of all exports, £219,000 was that of yerba-maté.

The imports are manufactures of silk, cotton, wool, linen, hardware, wines, spirits, &c., of the annual value of £177,170.

The history of Paraguay reads like a romance : the beauty of the country, its warm and salubrious climate, the fertility of its soil, and the great advantages which it derives from its water communication, made it the

paradise of the Indians, and, at the time of its discovery by the Spaniards, it was possessed by the Guaranis, a warlike and industrious race of men, who seem to have held their own against the invaders, or at least were neither exterminated nor driven out of their country, and, no doubt, this resistance brought the bravest of the Spaniards to the front, who stepped in where weaker hearts were afraid to venture, which, perhaps, accounts for what follows. The province became part of the vice-royalty of Buenos Ayres, and, shortly after declaring its independence, fell under the rule of Don Gaspar Francia, commonly designated as the "Tyrant." It is not safe to believe a man to have been a monster whose description—impossible to verify—we receive from his enemies; it is better to judge him by his works. During the rule of Francia and the two Lopez', whether we look to the general prosperity of the country, the absolute security of life and property, or the loyalty and devotion of the inhabitants to them, and compare all these with the present state of Paraguay, it is difficult to believe that they were so bad as they have been painted. As regards the second Lopez, the country never attained to such a pitch of prosperity. Foreigners were never so much encouraged as under his rule; and his defence of his Fatherland against overwhelming odds; the almost entire extinction of the Spanish race, in the loyal and heroic support which it afforded him; the circumstances of his death upon the field of battle, and his last words, "Muero por la patria," would form a fit subject for an epic poem. The remnants of these heroes should be cherished in Paraguay, from which to raise a new race of warriors, for nothing in history is finer than the defence of Paraguay.

In those days the population of Paraguay was quoted at a million and a half; now it does not exceed 500,000, and, except amongst the governing classes, the Spanish language has disappeared, and Guarani is spoken in its stead. The country was not only independent, but was feared by its neighbours; now it is under a foreign protectorate.

But, although from its climate alone, I should dissuade European emigrants from thinking of Paraguay, the country has within itself the nucleus of a prosperous people. Europeans can only there be the governing race; and the sons of Don Solana Lopez's soldiers will multiply and emulate their fathers. Let them invite, as their chief did, all the talents of Europe to settle amongst them by all means; but let them look to the Guaranis for their labouring population. They should bear in mind what the Jesuit fathers did with these people in Misiones, which they turned from a desert to a prosperous Christian State. Let them follow their example; let them offer farms and farming implements to the Guaranis, in the same way that they would to foreign immigrants. If they do this, they will soon save themselves the heartburning occa-

sioned by such abortive and tragic attempts as that which occurred three years ago, when the lives and happiness of so many British subjects were sacrificed, and embark upon a safe and easy road to national regeneration.

MERCHANT SHIPPING LEGISLATION.

SPEECHES OUT OF PARLIAMENT BY MR. RATHBONE, M.P., AND MR. SHAW-LEFEVRE, M.P.

AT Hope Hall, Hope Street, Liverpool, the Liberal Association, West Derby Ward, held a *soiree* on the evening of the 30th November, 1875. After tea, of which a large number of ladies and gentlemen partook, there was a concert; and between the first and second parts of the concert there were speeches. The *soiree* appears to have been a pleasant, musical, political, social feasting gathering; a "feast of reason and a flow of soul," combined with a flow of tea and a feast of the usual accompaniments. It seems to have been called together for the purpose of hearing Mr. Rathbone's views and of expressing sympathy with him as member for Liverpool. And it appears to have been a great success. It is to be hoped that the example set by the committee of West Derby Ward will be followed elsewhere. Politics are much pleasanter when interspersed with tea and toast and solos, vocal and instrumental, and Merchant Shipping Legislation can be treated of in a more interesting manner, when preceded by such soul-stirring themes as the "Death of Nelson," or perhaps, mollified by "Poor Tom Bowling" or "Wapping Old Stairs." At all events, let other associations take the hint, and if they wish to have a really pleasant evening with their representatives in Parliament, let them offer such a programme as will be likely to enlist the attendance of the young men and maidens. The elders and the matrons are sure to follow. On this occasion, among other things, Mr. Rathbone said:—"As regards the Merchant Shipping Bill, the cause of the miscarriage dates far earlier than even the introduction of the bill itself. It dates from the time when Mr. Disraeli decided that the trade, commerce, and manufactures of this country—its factories, its workshops, its railways, its shipping—everything connected with trade, commerce, and manufactures—were of so little importance that it was not necessary to give to the minister who had charge of their regulation the position of a seat in the Cabinet. (Applause.) All those who were interested know that Sir Charles Adderley made every effort to obtain for the bill under his charge that position in the legislation of

last session which its importance demanded, and that he spared no labour not only to carry a measure, but a good measure ; but he was not in the Cabinet to stand up for his bill, as Mr. Cross and Sir Stafford Northcote were to fight for theirs ; and it is no blame to them to say that, looking most zealously after the business with which they were entrusted, the Merchant Shipping Bill was constantly thrust aside to make way for bills in charge of ministers who were in the Cabinet. They have had a lesson on the treatment of this bill which they will not soon forget ; and I am glad to see that they have appointed Mr. Stanhope, who in the present Parliament has shown himself one of the ablest of the younger members of the House of Commons, to be secretary of the Board of Trade."

At Reading, on the 1st December, Mr. J. G. SHAW, LEFEVRE met his friends at the Town Hall. In a speech full of sound sense and practical application on the various topics he revived, he spoke of the Merchant Shipping Bill as follows :—" He had now only to deal with the Merchant Shipping Bill. They would certainly not have forgotten the excitement produced by the withdrawal of that measure, or the substitution for it of the Tenancy Bill. Rarely had Parliament witnessed a more painful scene than that raised by Mr. Plimsoll, and though he was successful in calling the attention of the Government to the gravity of the question, and compelling them to carry a temporary measure, yet such a scene was calculated to impair the authority of Parliament. The real cause of the failure was that Sir Charles Adderley was never properly supported by his colleagues, or by the Prime Minister ; not being a member of the Cabinet, his Bill was postponed to those of all his colleagues, and was driven from pillar to post. When his Bill did finally get into Committee, after a long day's discussion on a clause of great importance, for the purpose of protecting seamen from mortgaging their wages to crimps, the Prime Minister threw over his colleague, on the ground that the clause interfered with the freedom of contract, a principle so important to this other measure. From this moment Sir Charles lost all prestige, and it was obvious that if he had no support from his leader, he could not carry his measure, and it was only too clear that the Government never intended to bring it on again. Added to this, Sir Charles was constantly occupied in squaring it in the lobbies, sometimes with the shipowners, sometimes with Mr. Plimsoll's friends, and no one could tell in what condition it was. He had also for his Parliamentary secretary a gentleman who gave him no assistance ; and for this eminent service this gentleman had been promoted to a higher office, and was dignified with the title of Right Honourable. (Laughter.) Freightened in this manner, the Bill was destined to certain shipwreck, and the same fate would again attend it unless it received the attention and support of the Cabinet,

and unless Sir Charles had definite views upon the subject. (Hear, hear.) He (Mr. Lefevre) could not but add here, that although he did not agree with Mr. Plimsoll in all the remedies which he proposed, and he thought that he carried his love for inspection further than was really compatible with the safety of life, yet he was most ready to acknowledge the service which he had rendered to the country in directing attention to the subject, and in enabling measures to be carried which could not have been effected without the popular feeling which he had created."

CORRESPONDENCE.

CAPE TO AUSTRALIA.

To the Editor of the "Nautical Magazine."

DEAR SIR,—In your June number, of 1874, you were good enough to publish some remarks of mine in reference to the parallel upon which the long run to the Eastward should be made.

Since that period I have devoted a great deal of time to the subject, and continue to be of opinion that it is not advisable for ships to make their easting below the 40° parallel of south latitude.

In the *Nautical Magazine* for October, 1873, a gentleman commanding one of the large London ships, writes, "I left England in December, bound to Sydney, and ran down my easting between the parallels of 42° and 43°. I had *most unsteady winds, veering round the compass every forty-eight hours*. Fourteen times in eight weeks I had gales either from north or south; *no steady westerly winds at all*. I felt that I was in the wrong latitude to make a passage, but was reluctant to go further south, on account of the crankness of my ship." He then states that four ships about the same time made good passages in 45° to 46°, and recommends that parallel, though a very sharp look-out is necessary *for ice, and the weather is often thick*. In conclusion, he asks, "Where is the celebrated tea clipper *Ariel*? Most likely she went *too far south, and struck upon an iceberg some dark night*." This appears to me to be rather a questionable incentive to others to adopt a similar course; surely not many are desirous of sharing the fate of the vessel in question, albeit she was a "splendid tea clipper." He expresses no opinion on the subject of running north at 42° which is to be regretted. All this, I think, tends to confirm what I so much desire to *prove*—viz., that *it is a mistake* to run so far south as the majority of ships do. The unsteady winds—gales from north and south, &c.—referred to above, are precisely

the kind of weather met with in proximity to the centres of rotatory gales ; therefore, in all probability, had the ship been 120 or 200 miles further *north*, the predominant winds would have been from *westward* ; on the other hand, had she been so far south, easterly winds would have prevailed. With respect to the four ships which ran down quickly in 46° , they may have passed the Cape *much later* than the other ; and it is well known that, after a spell of easterly winds, the westerly blow for some days, or perhaps weeks, with greater regularity.

I send you herewith a list in continuation of that published by you in 1874, from which you will perceive that out of the 58 ships whose passages are noted in my table, 17 only ran down easting on an average parallel of 42° south ; these 17 averaged 80 days from the Cape to Sydney. Thirty-eight adopted the higher parallels, averaging 47° south, and 38 days (average passage). The last three ships in my list all ran across on a parallel more nearly approaching that which I advocate, than the majority of ships do, and these made excellent runs to the Otway or King's Island. One of the ships reports in 41° south, "Beautiful weather, high barometer, never below 30 in. Please compare this with the reports of ships which go down to 48° or even to 45° south."

These remarks are adduced as corroborative of all that has gone before on this subject, and I trust may be deemed sufficient to prove that the best parallel on which to run the long run is 39° south latitude, on no account exceed 40° .—Yours, faithfully,

J. F. NASH.

Sydney, New South Wales,
24th October, 1875.

[We regret that want of space does not permit us to insert Mr. Nash's carefully constructed tabular statement, but our readers will find all that was valuable in the table summarised in the text of Mr. Nash's letter.—ED.]

COMPOUND ENGINES.

To the Editor of the "Nautical Magazine."

SIR,—In the article on "American Steam Ferries," in your December number, when treating of the vessels of the National Line, the following occurs :—"With regard to the *Italy*, it should be mentioned that it was the first Atlantic steamship in which engines upon the compound principle were used." This is an error. The *Holland*, mentioned in your article as having been added to the same company's fleet in 1869, was engined on the compound principle by us, and her trial trip was made to the Clyde in order to give the company's directors an opportunity of

being present at the launch of the *Italy* in 1870. We may therefore fairly claim the credit of having engined on the compound principle the first steamer to cross the Atlantic, not only of the National Line, but also of any of its great rival "American Steam Ferries." By inserting this in your next number you will oblige—Yours, &c.,

JAMES JACK, ROLLO & Co.

Victoria Engine Works, Sandon Dock,
Liverpool, 9th Dec., 1875.

"A MODULUS OF STRENGTH FOR IRON SHIPS."

THE above is the title of a short paper in the volume of Transactions of the Institution of Naval Architects, just published. The author of the paper, Mr. McFarlane Gray, proposes to construct a definition of strength of all iron vessels by calculating what he calls a modulus of strength for each vessel from the scantlings of the midship section along with the length and displacement. The term "modulus" is one which we object to as quite too pedantic for such a practical office, and substituting for that expression the composite word strain-number, we will explain what we think would be the scope of usefulness of such a system of definition.

Calculations for the strains of iron vessels on waves are familiar with all shipbuilding engineers, and it is well known that, if rigorously executed, they involve an amount of tedious work. The result of these figures is generally given in the form of a strain in tons per square inch, and knowing what is the strain that can safely be borne by iron, the character of the structure, in respect to strength against longitudinally bending, is thereby defined.

Of this calculation, the most laborious part is that which refers to the distribution of buoyancy when on a wave in respect to the distribution of the weights in the ship. Now the, character of the wave and its dimensions are arbitrarily assumed, and the distribution of weights in a merchant vessel changes every voyage. Mr. McFarlane Gray, therefore, proposes to leave out these guessed at elements in the calculation, and to use the quotient found by dividing the product of length by displacement, by the value of the midship section; thus:—

$$\frac{\text{Displacement} \times \text{Length}}{\text{Value of Midship Section}} = \text{Strain-number.}$$

In the copy of the paper sent to us, Mr. McFarlane Gray has written that the *length* to be used ought to be the *mean length*, and that the

E

mean length of a hull is found by dividing the volume by the area of the midship section.

If the strain-number be found for a considerable number of steamers, including some that are known to be quite weak enough, it would be easy then to issue a classification code that would consist of only a few lines ; that, for an Atlantic voyage, the strain-number for steamers must not exceed — in the summer months or — in the winter months. The load-line would be at once fixed by this rule, at least so far as free-board is to be regulated by strength of hull. The strain-number would be fixed by the Board of Trade, then

$$\frac{\text{Strain-number} \times \text{Value of Midship Section}}{\text{Mean Length}} = \text{Displacement,}$$

the vessel must not load to more than that displacement.

The calculation of the value of the midship section might be, perhaps, reduced to a simple measurement of section in the stringers and upper portion of the sides of the hull, and that multiplied by a certain proportion of the depth of the vessel. We think the proposal deserving of careful consideration, and, if the principle is agreed to, there is no doubt the details could be adopted to meet every requirement.

The strain-number described above refers only to the bending about the horizontal transverse axis, but obviously the same method can be applied to prevent an undue reduction of thickness of sides.

The strain in tons per square inch can be approximated to by this method by dividing the strain-number by the number denoting the ratio between the mean length and the effective length of leverage of the weight acting to produce the strain ; this number will vary from about 20 to about 40—according to the height of the wave and according to the disposition of the weights in the ship. As a standard of comparison, however, the strain numbers calculated, as has been explained, will be quite as useful when understood as they would be if they were reduced to tons per square inch.

"ALBERTA" AND "MISTLETOE" COLLISION.—Having been asked by several correspondents to give our opinion on this case, we do so. We think that the *Alberta* was wholly in the right and the *Mistletoe* wholly in the wrong, and were it not for the lamentable loss of life that followed the collision, the lesson taught would have been cheaply purchased, and highly valuable as a caution against ill-mannered obtrusiveness and idle curiosity. The *Mistletoe* by her own action prevented the *Alberta* from following the Rule of the Road. She so placed herself and so acted that the *Alberta* could not "get out of the way."

THE LAW OF MARINE INSURANCE IN FOREIGN COUNTRIES.—No. I.



SUMMARY of replies to the questions addressed by the English Government to Foreign countries with reference to the law of marine insurance,* may possibly possess some degree of interest at the present time. The questions are twenty-four in number, and touching, as they do, on all the more salient points of the subject, the answers are of the highest value, both to those who deprecate any interference with our own law, on the ground of the risk of foreign competition—that *bête noir* of English underwriters—as well as to those who advocate a general international scheme of insurance, as suggested in the Report of the Royal Commission upon Unseaworthy Ships.

The questions were addressed to France, Austria, Sweden, Norway, Holland, Belgium, Italy, Germany, the United States, and Denmark, and with the exception of the last-named country, whose maritime laws are under revision, answers were received from all. It will be seen that on some points there exists great unanimity, while on others, and not the least important, there is a wide divergence in the practice of different nations. We shall deal with the questions in their numerical order.

In answer to the first question:—

1. *Is it the principle of the law that contract of insurance is a contract of indemnity merely, and is not to be made a source of profit to the assured? If so, how is this principle carried into effect in the following cases?*

All have replied in the affirmative. Legal wagering policies may therefore be considered things of the past.

With regard to the second:

2. *If it is clearly proved that the assured knew at the time he was insuring his property or interest that he was considerably over-insuring it, what effect would this have on the insurance?*

All, with the exception of France, Sweden, Holland, and the United States are agreed that the insurance in such a case would be nullified. The practice in these countries seems more to resemble our own, for, unless fraud can be proved, such knowledge has no effect, except that in France, Holland, and Sweden, only the real value can be recovered, whereas in the United States, as under English law, the full value given on a valued policy could still be claimed, even though the property had been knowingly over-insured.

3. *If no such knowledge as is referred to in the last question can be brought home to the assured, but if in fact the amount insured exceeds the actual loss, does the law prohibit the recovery of the excess?*

* See Parliamentary paper 304, Session 1875.

The answers to this question are all in the affirmative, with the exception of those given by Norway, and (as must necessarily follow from the reply to the previous question) the United States. By the Norwegian law the amount stipulated in the policy is binding unless the insurer can show that the property has been over-insured by 10 per cent., but the amount is invariably binding when it has been fixed, or agreed to, by the insurer himself.

4. *In the case of a policy on a ship where no value is fixed by the policy, what is the value of the ship taken to be for the purpose of estimating the amount for which the underwriters are held, and how is it ascertained, e.g. : Is it her value at the port of departure, and if so, does it include outfit and provisions, and premiums of insurance, and is any deduction made for wear and tear ? Or is it her value at the time of loss, or what would have been her value at the port of destination ?*

In France, Italy, Belgium, and the United States, the value at the port of departure is taken, all expenses of outfit are included, and allowance is made (except in the case of Belgium) for wear and tear. By the Swedish law, all expenses are covered, and no deduction is made, in the case of total loss, but in case of partial loss, allowance is made for wear and tear. In Norway and Germany the value at the port of departure is taken while outfit and provisions are not included. By German law, no allowance is made for wear and tear. In Holland the policy must indicate the value.

5. *In the case of a policy on a ship where the value is fixed by agreement and valuation on the policy, can the insured in case of total loss, actual or constructive, recover from the insurer the amount fixed in the policy, although greater than the actual value of the ship at the time of the commencement of the voyage or at the time of the loss ?*

Answers are given in the negative by Austria, Sweden, Belgium, Holland, Italy, and Germany. In Norway the excess can be recovered if not more than 10 per cent. (see their reply to No. 3). In the United States too, the excess can be recovered, as may be seen from the reply to No. 2. And so by French law, according to the answer given to this question, the excess is recoverable, though it should be remarked that the reply here given by France is somewhat in opposition to the answers given in her case to questions 3 and 6.

6. *If not, what steps can the insurer take to open the policy and contest the question of value, where he has reason to believe that the insured value exceeds the actual value, and what amount can the insured recover ?*

In those countries where only the actual value is recoverable, the reduction is made on the evidence of experts, and by appeals to the law. By the Italian law the burden of proof rests with the insured.

7. *If he has the right to open the question of value, are any and what*

conditions imposed to prevent him from doing so frivolously and vexatiously?

Except in France and Belgium no special conditions are imposed for the purpose of preventing policies being opened frivolously, the insurer being merely called on to pay the ordinary expenses of an inquiry. But in France and Belgium vexatious appeals render the insurer liable to be condemned in damages.

8. *In case of partial loss by damage to ship, can the assured recover wages and expenses accruing during the time of stay in port for necessary repairs, are those wages and expenses considered in the light of general average, or in the light of particular average falling only on the ship?*

With the exception of Belgium all have replied that such expenses can be recovered by the assured, and that they are considered in the light of general average. In Belgium a separate and distinct insurance is made for wages and victuals.

9. *Does the law allow the shipowner to insure freight or profits?*

In Belgium* and Italy freight may not be insured. Insurance of freight is also forbidden by the French and Austrian laws, though in both countries the practice seems to be in opposition to the law.

In France, 60 per cent. of the freight may be insured on what is called a "policy of honour." Profits may also be insured on policies of this description. In Holland, Germany, the United States, Norway, and Sweden, both freight and profit may be insured.

10. *If so, does it allow him to fix the amount of such freight or profits by agreement and valuation in his policy?*

Except in the case of Norway, where the amount of freight must not be agreed upon, but must be determined by charter-party and bills of lading, in all those countries where freight and profits may be insured, the amount may be fixed by agreement in the policy.

11. *Is he allowed to insure the gross freight, i.e., the whole sum paid or to be paid to him for the use of his ship, or only the net freight, i.e., such proportion of that sum as would remain to him after paying the expenses of the voyage?*

In Norway, Germany, and the United States, gross freight may be insured, but in Holland only the net freight is insurable. In Sweden, gross freight may be insured provided the cost of outfit, insurance, and the wages of the crew are not insured separately; otherwise only the net freight can be insured.

12. *If gross freight is insured, and the ship is lost on her voyage, can the shipowner recover the gross freight or only the amount he has actually lost? In other words, can he recover the gross freight without first deducting the expenses, such as wages, port dues, &c., &c., subsequent to the*

* The Belgian law on this point will probably be shortly revised.

loss which he would have had to pay if the voyage had been concluded, but which, in consequence of the loss, he has not had to pay?

By the Swedish, Dutch, and German law only the actual loss can be recovered. In Norway the gross freight is recoverable. It is also recoverable in America when the amount has been fixed by valuation, but when the amount is not fixed a deduction is made for unpaid expenses.

13. If he cannot recover the gross freight, what are the steps by which the insured can resist payment, and in what manner is the amount which he is entitled to recover in respect of freight calculated? In other words, what are the deductions to be made from the gross freight in respect of the expenses above-mentioned, and how are these expenses ascertained?

In Sweden the deduction to be made is a question for an average adjuster. In Germany it rests with the insured to make his claim good in the ordinary mode of civil procedure. No definite reply is given to this question by either Holland or the United States. In France the insured always gets 60 per cent.

14. If freight is prepaid to the shipowners, and the ship is lost before the completion of the voyage, can the merchant recover the freight from the shipowner?

To this question all have replied in the affirmative, France, Norway, Belgium, and the United States, adding, "unless agreed otherwise."

15. In the case of a policy on goods, how is their value estimated when they are not valued in the policy?

The invoice value, or value at the port of shipment, is taken as the estimated value by all.

16. If valued beyond their real value at the port of shipment, or at the port of destination, can the assured recover the excess?

The answers to this question are in each case of the same import as those given to question No. 3.

17. If not, by what steps can the insurer resist payment?

From the replies given to this question, the general practice appears to be to appeal to the legal tribunals.

18. Is there any implied undertaking on the part of the insured that the ship shall be seaworthy?

To this question all have replied in the affirmative. It may also be remarked that in France, Belgium, and Italy, there is a system of compulsory survey, every ship being officially visited before sailing. In France, however, it would seem that the fact of a ship having passed this inspection satisfactorily has no weight if unseaworthiness can be proved. But in the absence of such proof the official certificate is regarded as conclusive evidence of seaworthiness.

19. Does this undertaking apply to time policies as well as to voyage policies?

Here the answers are all in the affirmative. Though, judging from the reply given in the case of Belgium, it would seem doubtful whether the question was properly understood.

20. *Is it an absolute warranty of seaworthiness, or is it only an undertaking that the shipowner and his agents and the master of the ship shall, to the best of their ability, do all they can to make and keep the ship seaworthy?*

In Sweden and the United States there is an implied absolute warranty. In Austria, Belgium, and Italy, the official certificate seems to be looked upon as a warranty, and also in France unless unseaworthiness can be proved. By the German law the insurer is required to make himself acquainted with all the circumstances bearing on the vessels seaworthiness, and to make them known to the insurer in order to render the insurance valid.

21. *Is this undertaking fulfilled if the ship is seaworthy at the time of first leaving port after the commencement of the policy, or does it extend throughout the whole voyage or period covered by the policy?*

In Austria, Sweden, Germany, and Belgium, seaworthiness at the time of sailing appears to be all that is necessary, but by the Norwegian, French, and American law, the owner and master are required to do everything within their power to keep the vessel seaworthy, in order to maintain the validity of the insurance.

22. *Does the unseaworthiness of the ship discharge the underwriters from liability in those cases in which the loss was not in any way occasioned by the unseaworthiness?*

Replies to this question are given in the negative by France, Austria, Sweden, Norway, and Holland, but by Belgian, Italian, German, and American law, the insurance would be nullified if unseaworthiness or a breach of warranty could be proved.*

23. *In what manner does deviation from the usual course of the insured voyage affect the liability of the underwriter? Does such deviation discharge the underwriter from liability in all cases or only in those cases in which the deviation may be considered as having increased the risk insured?*

By French law any change of destination vitiates the insurance while a mere change of route has no effect. The change of destination nullifies the policy even when the vessel maintains the route for which she was insured. By the Dutch, Belgian, and Italian laws, any deviation nullifies the insurance. In Sweden and Germany deviation has no effect on the policy unless it has caused an increase in the risk. In the United States

* In the case of Belgium and the United States this is the case only where there has been a breach of warranty.

deviation is allowed to vitiate the policy, but should the vessel's original course be resumed the insurers responsibility is renewed.

24. *What is the nature of the tribunal by which questions between insurer and insured are tried? Is it a judge and a jury, or is it simply a judge, or is it a judge or judges assisted by mercantile or nautical assessors? In short, what is the composition of the tribunal, and does it give satisfaction?*

In France, Belgium, Austria, and Italy, insurance cases, if not settled by arbitration, as is often the practice, are decided by tribunals of commerce. In France and Belgium these tribunals are composed of merchants who are chosen by election. In Norway insurance disputes are tried before maritime courts composed in each case of a judge and two persons versed in nautical matters. In Sweden if the insured and the insurer cannot agree to the decision of the average stater to whom the case is first referred, the question is submitted to a special jury composed of a president, appointed by one of the regularly established courts, and four members chosen by the disputants themselves. Against the decision of this jury there is no appeal. In Holland insurance cases are tried before the ordinary civil courts, without either mercantile or nautical assessors, or juries. The practice in Germany varies considerably in different states. It appears that, as a rule, the courts are composed of several judges, that nautical assessors sometimes assist as experts, and sometimes give votes, but that no juries are made use of. In America such cases are generally tried before the ordinary civil courts by jury. Occasionally, however, they are brought before the Admiralty courts.

ENGLISH AND FOREIGN SYSTEMS COMPARED.—No. II.

On reviewing the whole of the information elicited with reference to the laws of marine insurance at present in force among foreign nations, it will be seen that on one or two points of the highest consequence our own law stands almost, or entirely, by itself, while in other, and no less important respects, there exists a wide divergence between the rules of different countries. The first phase of the subject which attracts the attention is the practice with regard to valued policies. In dealing with these, it will be found that the American is the only law that completely resembles our own by allowing the insurer to recover excess-value to an indefinite amount. With the exception of America, Norway is the only country where excess is recoverable at all; but in Norway the amount of over-valuation that may be recovered is limited, for if the underwriter can prove that it exceeds 10 per cent., he is entitled to a reduction. At the same time, he is debarred from this if he has accepted, or agreed to the valuation beforehand.

The second point of importance is the question of freight. Insurance of freight and profits may be said to be the general rule, although there appear to be one or two countries where the practice is not recognised by the law. The Norwegian law seems to be the only one that, like the English, permits the recovery of gross freight. In all other nations, in the case of a vessel lost on her voyage, all unpaid expenses have to be deducted from the amount due for freight. As regards the repayment of pre-paid freight our law appears to differ from that of all other nations. In no other country is the merchant debarred from recovering the freight he has advanced to the shipowner, supposing the vessel to have been lost before the completion of the voyage. From the replies given on this point by France, Belgium, Norway, and the United States, however, it would appear that in those countries the merchant sometimes precludes himself from this privilege by special agreement. In the same way our law stands alone in preventing the recovery of wages paid while the ship is undergoing repair.

With regard to the question of seaworthiness, it will be seen that this is an implied condition among all. And here, again, our law is peculiar in making a distinction between time and voyaging policies. By the English law the shipowner can recover the amount of his insurance upon a time policy, in spite of the fact that his vessel may have been unseaworthy ; but in none of the countries to which these questions were addressed would he be able to set up a legal claim under such circumstances. In France, as most of our readers are doubtless aware, there is a system of compulsory survey, every ship having to obtain a certificate from the authorities of the port to the effect that she is in a thoroughly seaworthy condition before she is allowed to clear. Yet the possession of this certificate is not looked upon by the underwriters, or even by the law, as conclusive proof of the vessel's seaworthiness. At the same time, although the fact of a ship being officially certified as sound and in good condition does not debar the insurer from resisting claims on the ground of unseaworthiness, it is regarded as convincing evidence in the absence of clear proof to the contrary. By the Austrian, Swedish, German, and Belgian law, seaworthiness at the time of sailing is all that is required ; but by the Norwegian, French, and American law, seaworthiness must be maintained to the best of the ability of the master and owner throughout the entire voyage. By our own law, unseaworthiness at the time of sailing vitiates a voyage policy, even though the vessel may have been afterwards made sound. In this respect the English practice resembles that of Belgium, America, Germany, and Italy. As regards the trial of disputed insurance cases, America and England are the only countries where such questions are left to juries to decide.

Upon a careful consideration of the whole subject, it is easy to understand the diffidence with which the Unseaworthy Ships' Commissioners touched upon the proposed revision of the English law. Doubtless the matter is one that requires the most cautious management. The facility with which insurance may now be effected in foreign countries, as well as the extent to which the practice of doing so already prevails, are quite sufficient to warn reformers against attempting any hasty or ill-considered amendment. To adopt any measure that would simply take business from the hands of English underwriters to place it in those of foreigners would be simply to injure ourselves, without lessening in any way the evils we now seek to remedy. But it seems to us that the evidence contained in the replies, of which we have endeavoured to give a summary, will help in a great degree to clear away some of the more serious difficulties that have hitherto surrounded the question. The chief matters requiring consideration are undoubtedly the practice with regard to valued policies, the insurance of gross freight, seaworthiness, and the method of deciding disputed cases. And when we find the English law standing alone, or nearly alone, on each of these points, while the practice elsewhere is in general harmony, both the risk to be apprehended from foreign competition in the event of an alteration being made in our own system, as well as the difficulty in the way of devising a general international scheme, are unmistakably lessened. In referring to the question of valued policies, the Royal Commissioners point out that, to give the underwriter power to open a valued policy, would probably drive insurance business abroad; but those who urge this as a reason for non-interference should point out from what quarter they anticipate this serious competition. Except in the United States, there is no country where the law clearly permits the insured to make a profit out of the loss of his ship; and it is extremely doubtful whether, in the event of the English system being brought more into unison with the practice now in force throughout the rest of Europe, a very large portion of our insurance business would find its way to the other side of the Atlantic. Taking into consideration the extreme reluctance generally shown by underwriters to resist claims, it is not likely that they would avail themselves to any considerable extent of the power to open policies, and we may safely conclude that only the very doubtful section of marine insurance would find its way into other hands. Underwriters have little cause to apprehend that the honest shipowner would fear to do business with them. The class whose custom they would lose would consist of those whose patronage is worse than worthless, and they need not, therefore, begrudge the few transactions that might possibly be taken from them by an alteration in the English law. As to the difficulties in the way of arriving at the exact value of a ship, there

is no reason why these could not be met by allowing a margin of ten or fifteen per cent., as is done under the Norwegian law. No doubt cases often arise where a ship possesses a value for her owner that she would by no means possess in the open market, but if a tolerably wide margin were left for this contingency, it is not often that any very grave injustice would be done in this respect. As to the impediments to obtaining a fair valuation under ordinary circumstances, we think these are far more chimerical than real. Such valuations are constantly being made by the Admiralty Court, and this without giving rise to any serious dissatisfaction on the part of those who are interested.

With regard to the insurance of gross freight, there would be no real difficulty in the way of amending the present law if it were determined to abolish the rule which now holds the valued policy to be strictly binding. This latter provision would, of course, be necessary, for without it the owner, by giving an increased value to his ship, would always escape the effect of a reduction in the amount he may be enabled to recover for freight. Against any alteration in the law which governs the insurance of gross freight the risk of litigation is urged, as in the case of valued policies. But, as we said before, there is little ground for apprehension on this score. On the contrary, there is far more to be feared from the disinclination of underwriters to dispute such cases. The law would be far more likely to be inoperative, than to prove detrimental. On this point, too, there is little or no risk of foreign competition involved, since Norway is the only foreign country where gross freight can be recovered.

But in our opinion this danger to be apprehended from outside competition of which we hear so much, has no existence whatever in reality. In the event of an alteration being effected in the English law relative to valued policies and gross freight, it is not likely that any appreciable portion of our marine insurance would leave the country. We suppose no shipowner would care to confess that he is anxious to make his profits by means of insurance; and honest men may rest assured that a change in the law would not prove detrimental to their interests. If an owner is permitted to recover the full market value of his ship, with a safe margin for any accidental value she may possess for himself, he certainly can have no cause to complain. And in the same way with the insurance of freight. Why should he be permitted to make a heavy profit by the sinking of his ship as soon as she leaves port? In the short debate upon this question which took place during the last Session of Parliament it was argued as a reason for the insurance of gross freight, that ships often sail in ballast or with unremunerative freight. But surely it would be time enough to insure the remunerative freight when the remunerative voyage was about to begin. As well might one argue in

favour of insuring unchartered freight that will probably be earned in the course of the following year, as plead for the insurance of that which may be earned some three or four months hence if a cargo can be found.

The fact is, the opposition that is shown to any amendment in the English law of insurance, is founded principally on reasons totally different from those which are usually set forth as arguments for non-interference. At the first glance, it seems strange that underwriters should show so much anxiety to perpetuate a system under which they may frequently be called on to pay heavy indemnities for losses that are purely imaginary, but the explanation of this apparent anomaly is not difficult to trace. The vast majority of insurance business consists of *bonâ fide* transactions that are effected solely with a view to securing a fair indemnity for actual losses—transactions that are made by men who really intend and hope that their vessels will reach their destinations. And this being the case, it is perfectly natural that underwriters should be anxious to prevent the adoption of a rule that might possibly tend to lower the amount upon which premiums are paid. Taking the good and bad together, they are quite content to run the risk of the exceptional cases of fraudulent insurance on unseaworthy ships that occasionally arise. A system has grown up under which premiums have so adjusted themselves, that the good risks cover the bad, leaving the underwriters in thorough security on the whole. And here it is that the public have a right to step in and urge their claims for consideration. That human lives and valuable cargoes are being needlessly thrown away under this system no man dares deny, and unless some far better reasons can be urged against non-interference than any which have as yet been adduced, the country has an undoubted right to insist on some amendment being made in the law. It is difficult to understand how men, whose position and experience must necessarily give the greatest weight to their opinions, can stand up and assert, as they did in one or two cases before the Unseaworthy Ships' Commission, that the sacrifice of this property is a question which only remotely affects the general public. In the face of such statements as these it may not be out of place to remind underwriters that not only are these losses borne by the public in the shape of increased premiums, but that the entire system of marine insurance is as much a direct tax upon the pockets of the public as any duty that is levied by the customs. The loss of a valuable cargo has been well described as a national calamity, and to devise means for the prevention of such waste is an essentially national question. The matter is by no means one that affects shipowners and underwriters only, and looking to the agitation that is now being raised with a view to increasing the security of life and property at sea, we would strongly urge upon both to support what certainly appears to be the simplest means of remedying

the evil, before they find themselves trammelled by conditions that would probably be far heavier to bear.

The present system bears its own condemnation stamped upon its face. Such an example as that brought to light before the Royal Commission, where a man in order to prove a constructive loss had to show that a ship which he had insured for £36,000, was worth only £15,000 is a gross absurdity, but that he should be able to set up a legal claim to the £36,000 under such circumstances is a scandalous disgrace. Yet it is the law which allows anomalies like this to arise that the country is told it should perpetuate for its own benefit. There is good reason to believe that men who uphold such theories as these find their arguments in their pockets only.

With regard to the question of seaworthiness, again our law presents a peculiarity not easy to defend. We refer to the distinction made between the requirements for voyage, and those for time policies. It is argued that seaworthiness could not well be made a *sine qua non* in the latter, as the owner has not always the means of satisfying himself that his ship is in proper condition. But if the owner cannot do this, his representative, the master, can, and certainly no injustice would be done by bringing the English practice into harmony with that of other nations, by giving underwriters power to resist claims whenever they could show that due care had not been taken to maintain the ship in a seaworthy condition at every part of her voyage. The privilege of allowing unseaworthiness to count for nothing on a time policy should be at once abolished. It is totally indefensible in theory, and at the same time it is at variance with the practice in all other nations.

Seaworthiness is, after all, the main point on which the grand difficulty connected with marine insurance turns. And in this respect it seems to us the matter lies in a nutshell. Putting aside the great question of the safety of human life, it is perfectly certain that an unseaworthy ship cannot be sent to sea without detriment to some one. And that unseaworthy and barely seaworthy ships are occasionally sent to sea is equally certain. Their owners send them by design, while insurance is the means by which their loss is distributed over the ships that are sailed honestly and fairly. Where the brunt of this falls, no sane man can doubt. We sometimes see the blame for this needless waste laid upon the shoulders of underwriters. They are taxed with carelessness, and told that they accept risks which a little investigation would have caused them to avoid. They have been asked to show some public spirit by taking the trouble to look into the cases that are brought before them for insurance. But all this is as much beside the question as is the fallacy pushed forward by underwriters themselves when they tell us they are

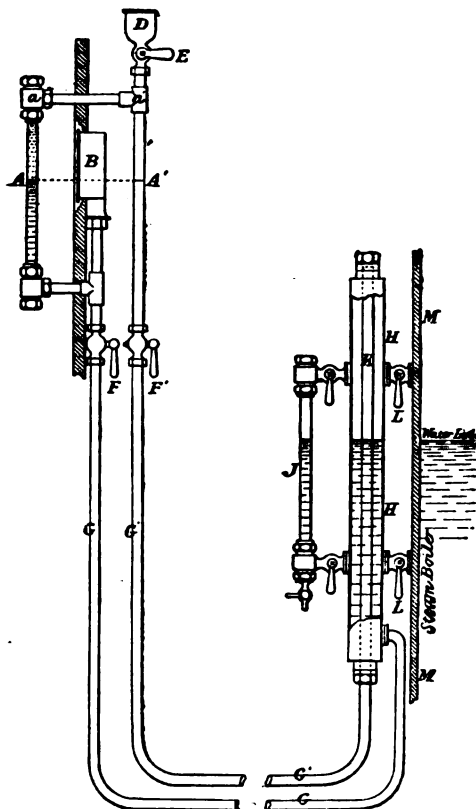
content to run the risk of imposition, and to bear the fictitious losses involved in the present system. The prospect of gain is the main-spring that moves the commercial world, and as long as underwriters can make their profits, as they do under the existing arrangements, by taking the bad risks with the good, it is quite useless to ask them to go out of their way to play the part of guardians of seamen's lives and public property. And since it is vain to expect this, there remains but one remedy. The old method of reforming abuses must be had recourse to. There is but one way of influencing unprincipled men, and that is by rendering their wrong-doing either dangerous or unprofitable. It is not to the underwriters that the country must turn, but to the owners who hope to make a profit by the foundering of their worthless ships, and on these men it would be easy to act by making over-insurance a hazardous business. If it were well known that the recovery of excess-value might possibly prove a doubtful undertaking, we should hear of no more ships being insured for 100 per cent. beyond their real worth, as is now not unfrequently the case. Underwriters are notoriously adverse to dispute claims in the present day, and it may be that under the system we propose they might not often make actual use of their power, but, at the same time there can be no doubt that the mere knowledge that improper claims could be resisted would have great weight in preventing fraudulent owners from laying out premiums that might afterwards prove to have been only thrown away. The general practice would quickly come into harmony with the new law, and the public would undoubtedly reap the benefit of the change.

PROPOSED SAILORS' HOME AT RAMSGATE.—We are glad to hear that it is intended to establish a Sailors' Home at Ramsgate. Straggling seamen at this port are numerous, and a well-organized Sailors' Home with not too much of the mission church connected with it, is very likely indeed to catch many of the seafaring waifs and strays who prowl about this port. The promoters of the proposed Home will, however, do well not to make the sailor's creature comforts secondary to his spiritual comforts. Entice him into the Home by all the "temporal" allurements which can be reasonably held out so as to keep him out of evil haunts and wicked hands, but let all "spiritual" professions and ordinances be voluntary on his part, otherwise more sailors will be frightened away than will be attracted to the Home. Friends of the sailor will, we think, do real good by supporting this proposed Home, and as money is required to set the establishment on foot, we venture to suggest to those of our readers who are well endowed with this world's goods that they should send a contribution to Captain R. A. Burstal, R.N., Ramsgate, who is the honorary secretary of the undertaking.

MARINE INVENTION.

NICHOLAS'S PATENT OFFICE WATER-GAUGE.

THIS instrument is, as its name implies, a water-gauge, to show in the office, or other required situation, the quantity of water or other liquid



contained in a boiler, tank, or reservoir. It is without moving parts, and, therefore, very unlikely to become deranged.

In this view, M M is the front plate of a boiler, to which is connected the ordinary gauge-glass J. Instead, however, of this being mounted directly on the boiler front, there is interposed between it and the latter the small cylindrical chamber H, having within it the return tube K, which extends up into the steam space of the cylinder H. This tube passes out at the lower end of the chamber H and joins the pipe G', while another pipe G is led off from the water space of H, as shown.

The two small lead pipes G and G' are continued to the cabin or engine-room, as the case may be, and attached to the office water-gauge at F and F'. These cocks, marked F and F', are connected with the gauge-glass J. F with the bottom part, and F' with the top. F also gives communication to the pressure-gauge B. The piece of pipe above F' is also extended up to the cup or funnel D, which is for the purpose of readily inserting the coloured oil used as an indicating medium.

Now, suppose the water-level in the boiler to be as shown in our engraving, the water standing at the same level inside the pipe K, as in the casing H and the pipes G G', and the gauge-glass being entirely filled with water up to A and A', while above that point the instrument is charged with the coloured oil, which is filled in through the funnel D. Under these circumstances we have a continuous column of water and liquid which is, practically, noncompressible, and perfectly sensitive of any difference of pressure applied to the one end by extra head of water by rising of the boiler, or *vice versa*. Under these circumstances the junction at A between the coloured oil and water will indicate the position of the water in the boiler, and the whole system will be in equilibrium. If, now, the water-level falls in the boiler, it will fall also in the chamber H and in the tube K, because water always finds its own level; but this tube K only communicates with the water in H through the system of tubes G G' and the office water-gauge, and thus the falling of the level in the tube or stand K necessitates a movement of the liquid contained in the pipes G G', and causes the coloured liquid to descend in the glass tube in the office. A rise of water in the boiler causes a reverse movement, so that as the water rises or falls in the boiler, or the red oil rises and falls in the instrument, in the office, cabin, or engine-room, irrespective of the distance between, or the relative levels of the office water-gauge and the boiler.

We will now give a few of its uses for marine purposes.

Boilers.—Attached to the boilers and placed in the engineers' cabin, or on the deck, others than the stoker would be able to see the amount of water contained in the boilers.

Bilge.—The captain or engineer would see at once any sudden influx of water, and so save many lives by prompt attention.

Water Line.—If required, one of these gauges would indicate in the cabin or on deck the exact draught of the vessel.

Tides.—This gauge can be placed in dock-keeper's lodge or other suitable place, and will indicate the height of the water when flowing into rivers, &c.

This gauge is not in the least affected by the pitch or roll of the vessel. The inventor and patentee of the Office Water-Gauge, is Mr. John Nicholas, engineer, 90, Brunswick Street, Manchester.

BRITISH MERCHANT SEAMEN AND THEIR WAGES.

IN *Fraser's Magazine* for December is an article by Commander Dawson, R.N., entitled, "British Merchant Seamen." In many respects our views are in complete accord with those of the author; we heartily agree with him in his denunciation of the advance note, and also in his vigorous advocacy of the paying off of seamen on shipboard immediately on the termination of their engagement, so that the men may not be kept waiting about the purlieus of the port of discharge, a prey to crimps and their associates. We deplore with him the sad condition of things which too often may be seen in operation on the arrival of a British merchant vessel from a long voyage, and sincerely sympathise with him in his desire to mitigate or put a stop to the evils now existing. But in regard to the principal means whereby he believes that a remedy is to be obtained, we cannot so completely agree with him. In effect his opinion is, that if seamen were paid monthly on shipboard, or enabled during their voyage to remit or allot part of their wages to their families, the great evil of seamen finding themselves with a considerable sum of money in their pockets at the end of a voyage would be avoided. In support of this view, Commander Dawson instances the present condition of the Royal Naval Service as compared with what it was many years ago, and attributes the improvement chiefly to the system of frequent payments which is now adopted in Her Majesty's service.

With regard to monthly payments to merchant seamen, the question must be considered in a comprehensive spirit, and not altogether in the interests of the seaman. Commander Dawson, with that thorough-going earnestness which is his special characteristic, is absorbed in a strong desire to improve the condition of mercantile Jack, but we venture to say that in our opinion he has not grasped the subject in its entirety. We do not think monthly payments on shipboard would in the least degree benefit the merchant seaman, and without going into the question (which we consider to be a very open one) as to whether or not the improvement of the Royal Naval Service is attributable to the frequent payment system, we will give a few reasons why the system should not at present be applied in the Mercantile Marine. In the first place, seamen could have no use for money on shipboard, and the possession of it would actually be fraught with evil, for those who know what the fore-castle of many of our ships is, will readily understand that among the seamen there would be some quite disposed to yield to the temptation to appropriate or gamble with their comrades money. Again,

F

does Commander Dawson think that the men would *not* spend their money if they had it on arrival at a foreign port, and so be worse off at the end of a voyage than they are now? Does he think they would resist the delicate attentions of crimps and women in other parts of the world besides England? And does he believe that men who would desert at the end of a voyage would *not* desert in the middle of it if they had money in their pockets? If Commander Dawson believes all this, we can only say that he knows less about British merchant seamen than we do. But, perhaps, the chief question is, What could the steady and prudent mercantile sailor do with his money if he had it? It is easy enough to refer to the Royal Navy, and point out how satisfactorily the saving's bank system works in that service; but Commander Dawson forgets that the reason of its success is because it is held up and carried on by means of an elaborate Government organization which is ready close at hand to receive the sailor's money, and take care of it for him if he chooses, a system which could not possibly be worked in the merchant service. These points suggest themselves in regarding the matter from the seaman's point of view, but we would ask, is the shipowner not to be considered at all? It seems to us that Commander Dawson somewhat unfairly represents the shipowner as keeping the wages of the seamen in his hands, and delaying payment as long as possible in order to reap the benefit of the interest accruing. The fact is, however, that in his own protection the shipowner is obliged to withhold payment in order to enforce the sailor to perform his contract. If wages were paid to the seaman on board daily, weekly, or monthly, there is no doubt whatever that it would be a direct encouragement to seamen to ignore their contracts with shipowners, and desert whenever they felt inclined. Desertion at the present time is bad enough, but the wholesale desertion which would follow the frequent payments proposed, would be exceedingly disastrous to the shipowner. It is no answer to say "that in the Queen's service the exact contrary has been experienced." The two services are on different footings altogether, and totally different conditions regulate the employment of the two classes of men.

But Commander Dawson thinks that by the proposed plan the seaman would be able to assign a portion of such wages to his family. With all deference to Commander Dawson, we beg to state that there is nothing whatever to prevent the mercantile sailor from doing so at the present moment, by means of the "allotment note" (*vide* Sections 168 and 169 Merchant Shipping Act, 1854). We notice that Commander Dawson makes a great deal of the allotment note in the Royal Navy, but dismisses its Mercantile Marine relative with something like contempt. The fact is that they are both alike; in each service it is quite optional whether the seamen take

advantage of it or not ; there is no compulsory rule about them, except in the merchant service, as regards payment by the shipowner, seamen's relatives being enabled to recover on the allotment note. As in the Royal Navy very many seamen do assign part of their wages for the benefit of their families at home, so in the merchant service it is a common practice in all respectable lines for sailors to assign half-pay to their families, and shipowners do not often withdraw from their undertaking after the departure of the husband "on very frivolous pretences," for by the 169th Section of the Merchant Shipping Act the amount of the allotment is recoverable at law by the relation in whose favour the allotment is made. It seems to us that it would be folly to make the allotment note compulsory in the merchant service as recommended by Commander Dawson, especially as 50 *per cent.* of sailors have no respectable connection to whom to make the allotment, and when such good results, on his own showing, have sprung from the voluntary operation of the same thing in the Royal Navy.

A STRANGE BOILER EXPLOSION.

AN explosion, seriously injuring two men, occurred a short time since in a screw steamer, not under the survey of the Board of Trade. The boilers are circular, with two furnaces and one combustion chamber. The combustion chamber bottom follows the circle of the boiler, and is, consequently, lower than the bottom of the two furnaces, so that any water that may leak into the combustion chamber lies there until it reaches the level of the bottom of the furnaces. The tubes were leaky at the back end, and to allow the water to get away holes were left in the bridges at the bottom of the furnaces. By the time that the water reached these holes through evaporation, the space became almost filled with solid salt, and the holes for drainage were thereby closed up, and then the deposit of salt from leakage continued to increase until it sometimes reached to nearly the top of the brick bridges. The boiler-room and engine-room are in one, and at the time referred to a door in the bulhead was open into the hold. The steamer had been six days at sea, the tubes leaking badly, when a violent explosion occurred in the combustion chamber of the starboard boiler. The force of the concussion lifted the hatches in the hold, lifted the timber boards, blew open the smoke-box doors, and broke the middle bearing bar of one furnace, and blew the fire into the engine-room, seriously injuring two men, one of them so severely that his life was

for some time despaired of. On examination it was found that the explosion had occurred in the salt deposited in the combustion chamber. The salt had opened up like the crater of a burning mountain, showing where the explosion had originated, but the boiler itself was not injured. There had been several minor explosions of the same kind in these boilers.

THE ADVANCE-NOTE SYSTEM.

THE unsatisfactory condition of our present class of merchant seamen is a matter of such great importance, that we shall offer no apology for once more drawing attention to what we confidently believe to be one of the principal causes to which it is attributable. We refer to the advance-note system. We shall not here recapitulate the whole of the arguments that have been adduced for and against the present method of advancing seamen's wages. In a previous paper upon the subject,* we set forth, at considerable length, the various reasons that are to be urged on either side of the question, and we think most candid readers will admit that after a careful consideration of the whole of the facts of the case, there can be little doubt as to where the balance of evidence lies. But those who are acquainted with the true position of this matter, are well aware that the abolition of advance notes is not really a question that may be altogether decided by argument. The difficulties that have been thrown in the way of any amendment or alteration of the present system, owe their origin to the difference which is supposed by some shipowners to exist between their interests and certain measures that have been proposed for the amelioration of the general condition of British merchant seamen. That the abolition of advance notes would have on the whole a beneficial effect on the general welfare of our seamen, even the supporters of the advance-note system are willing to admit. But at the same time they are somewhat uncertain as to the effect its abolition might have upon themselves. Under its operation they find certain facilities for obtaining and retaining crews—without it they imagine this might become a matter of greater difficulty. And between the actual evil suffered by the seamen, and the evil which they see in prospect on their side of the case, they have no hesitation in choosing. The most cursory examination of the discussion upon clause 9 of the Merchant Shipping Act, 1875, is sufficient to show where the real stumbling-block lies. The plea brought forward

* See *Nautical Magazine* for August, 1875.

against interfering with what is termed "freedom of contract," sounds well certainly, but when we remember that in no employment is freedom of contract more completely—and, we may add, more necessarily—hampered, than in employment on board ship, this argument loses the greater portion of its force. When we remember that discipline, for example, is maintained solely by the inability of the seaman to engage himself under the ordinary conditions that govern contracts between the employer and the employed, it seems curious that shipowners should come forward and urge the desirability of maintaining freedom as the main reason for non-interference. With regard to the exact value of the principle conveyed in the words "freedom of contract," great differences of opinion must necessarily arise. All we wish here to point out is the futility, not to say the absurdity, of introducing it as a conclusive reason against legislative interference in the present case. As a general rule it is no doubt sound, but in the complex conditions of every day life abstract principles have often to be modified to meet the varied circumstances with which they clash. Again and again has Parliament interfered with freedom of contract, and this with the entire concurrence of the nation, and again and again the same thing will no doubt have to be done in the future. But as we said before, it was out of no love for abstract principles that certain shipowners determined to overthrow the proposed amendment of the present law. Their opposition was based on what they believed to be their own interests, and in adopting this belief we are of opinion they have made a grievous error.

The chief use of the advance note, as we pointed out in our previous article upon the subject, consists in the facilities it gives for getting crews on board. It works in the following manner. We will suppose that a crew is about to be engaged for the Pacific. The men expect an advance, and, as soon as articles are signed, the master accordingly presents each of them with a note representing one month's wages—say £3. This note is taken to a crimp, who charges 15s. for discounting it in the first place; but the remaining 45s. is not handed to the seamen in hard cash. It is paid in the shape of an "outfit"—a night's lodging, perhaps, and enough vile spirit to reduce him to a state of helpless drunkenness. Too often the only return he gets for his advance is the drunken carouse; but if he is fortunate enough to get a few slops in the bargain, he seldom obtains the benefit of more than 30s. of his month's wages. The drunken boat, it should be observed, serves a double, or rather a treble, purpose. It enables the crimp to do as he likes with the seaman's advance; it facilitates the operation of pushing, or carrying, the crew on board, and thus it relieves the owner and master of a great deal of trouble in getting the hands together. And this is the practical working of that great principle with which we are told it would be sacrilege to meddle.

The first suggestion which presents itself, when we regard the advance-note system as a whole, is that the note creates the very difficulties it is supposed to prevent. It is said that men will not join without an advance unless they are paid something like 10s. or 15s. per month above the ordinary rate of wages. But, supposing the entire system were swept away to-morrow, what would become of all these men to whom the advance note is said to be so dear? Would they at once leave the sea for some other occupation? Not for the sake of the advance note certainly, for in no other occupation would they get one. Neither would they join foreign flags with the same end in view, since the note system is practically unknown among European nations. It is in force in the American merchant service, it is true; but the shipping trade of America is so small, compared with that of Europe, that it may well be ignored in dealing with this particular question. There remains, then, but one inference to be drawn, and that is that the sailor would continue to follow his vocation without the note. He would be compelled to suffer the hardship of going on board sober, and of receiving the full value of his wages when they were earned. It is perfectly certain that he would be better able to assist in working the ship when in this condition, and it is highly probable that his moral status would be somewhat raised by the change; but it will not be contended that the interests of the shipowner would suffer in consequence of these improvements. The reason why increased wages have now to be offered, if no advance is made, is quite clear. Under the present system the men (at least, a certain section of them) look for the note, and the farewell bout of drunken pleasure (?) which it brings; but, if the notes were entirely abolished, they would no longer ask for increased pay because no advance note was given. Their services would at once find their proper level in the labour market, undisturbed by the inequality the advance note now creates. It is argued that if the seaman is anxious for the note, and the shipowner is willing to give it, why interfere by treating the former as a fool? Simply, it may be answered, because the seaman not unfrequently is one. Without treading back on the sacred "freedom-of-contract" principle, we shall content ourselves with pointing out that in no walk in life would it be possible to find so many instances of reckless folly as are shown by seamen in their dealings with the harpies who swarm around them whenever they set their feet on shore. The way in which they allow themselves to be robbed and hounded is perfectly amazing to landmen; but the worst part of the story is that their folly does not end with themselves. The advance note, which they find so useful for assisting them to indulge in their folly, requires the services of the crimp to ensure its proper working. And the crimp in order to carry out his share of the business, has to ply

his clients with drink until they are insensible. He has no difficulty in doing this. It is what they are looking forward to, and as soon as they are reduced to the requisite condition they are placed on board, without further trouble to the shipowner. And it is at this stage of the proceedings that a question of public interest arises, quite separate and distinct from that of individual sailors, or even of shipowners. Again and again has it been pointed out that numbers of ships must necessarily be lost solely through the condition in which their crews are placed on board, and if by any simple means, like the abolition of the advance note, a remedy for this particular evil could be found, the country would possess an unquestionable right to interfere on this ground only. In no part of the world are the risks of navigation so great as they are around our own shores. Narrow seas, uncertain winds, dangerous shoals, and a heavier traffic than is to be found in any quarter of the globe, are conditions that require the utmost caution, and a sharp look-out on the part of the seaman. Yet here it is, of all places, that ships are constantly to be found manned by crews suffering from the stupor of recent drunkenness.

It is amusing to listen to the plea that is sometimes put forward on behalf of the sailor's wife in the matter of the advance note. According to the right honourable member for Oxfordshire, the seaman's better half would be left in a serious plight if the advance note were swept away and the allotment substituted. The poor woman would then have to go on "tick" for a month, and so on until each allotment fell due, "tick, tick, tick, to the end of the chapter." Those who have any acquaintance with sailors and their habits know full well that this is precisely what she is doing under the present system—the only difference being that she does not often get the benefit of advance. Out of every £100 advanced to British seamen, their wives may possibly get £5; it is extremely doubtful whether they get more. The remainder is devoted almost entirely to the support of crimps and women who are not wives. If this really were a question in which sailor's wives are at present generally interested there would then be no reason to interfere. But unfortunately this is not the case. They are interested to a certain extent, it is true, for they now get practically nothing; but if it were the custom among the men to hand the advances to their wives, or even to lay them out in clothes for the voyage, the abolition of the note system would never have been mooted. It is because the note finds its way into the hands of the crimps, and because of the injurious effect which this diversion has upon the sailor that it is now proposed to sweep the entire practice away.

Among all the witnesses examined by the Royal Commissioners upon unseaworthy ships with reference to the advance note, there were few

who did not acknowledge that it was an evil. There were some who half apologised for it by describing it as a necessary evil it is true, yet none of them could show clearly where the so-called necessity lies. It is supposed to be made up of the probability of higher wages being demanded, and of the difficulty of getting crews on board, but as we have already pointed out, the evils which are apprehended in these respects are created by the note system in the first place. In the event of the note being abolished, the laws which govern the labour market would remove the first difficulty, while it is to the very temptations held out by the note system that the second is mainly attributable. It has also been said that seamen will not engage themselves until they have run into debt with the crimps, but it is quite clear that if there were no note in prospect, the crimps would take good care that this dilemma should not arise.

It can hardly be supposed that any shipowners are averse to the seaman being raised from the slough of folly and degradation in which he seems fast sinking. There can be no doubt that men of thrifty and provident habits are far more capable of working a ship than the ill-clothed, besotted beings whom the crimp so often pushes on board to do duty as A.B's., and if any means can be devised for inducing the seaman to rely upon himself, or for emancipating him from the enervating influences by which he is now surrounded, it would be a serious mistake to stand in the way of a reform. We will not go so far as to ask shipowners to look upon this as a matter of public duty. We will take the lower ground, and ask them to investigate the change we advocate, merely as a question of interest. And here we think it will be found they have nothing to apprehend. If a comparison be drawn between the naval service of by-gone days and the merchant service of the present time, it will be seen that the Admiralty of the former period had much stronger reasons for supporting the advance note, and consequently the crimp system, than have the shipowners of our own day. In their case they were under the necessity of getting particular men on board, and at first sight there seemed to be some reason for keeping a kind of unofficial hold upon them. But the shipowner is differently placed. He can go into the open market where, if certain men are unwilling to join his ship, he is sure of finding others who are willing. And if the naval authorities were so wide of the mark in their calculations, how much more likely it is that a similar error is again being made. The British man-of-war's man of the present day is morally speaking, a model character compared either with his cousin of the merchant service or with his predecessor of the Navy. Yet he is not the less efficient as a seaman because he possesses a higher moral tone. Why then should shipowners so resolutely oppose any change? Simply because they believe a reform

would be detrimental to themselves. And in this belief we feel convinced they are mistaken. It is not likely that the Royal Commissioners would have recommended the abolition of advance notes so strongly as they did, had they not been satisfied that the change would be for the advantage of all concerned. According to the honourable member for Plymouth (by whose personal influence alone the advance-note system still exists) they knew nothing of the subject, but if not, they were certainly unfit to be Royal Commissioners. They examined a large number of witnesses on the point, and after doing so they expressed the strongest, because the most decided, recommendations to be found in their report, and if this was done in utter ignorance of the subject in hand we can only say the country has good ground for complaint. The Commissioners must have been remarkable for their stupidity rather than for their intelligence. Of course such charges as this are absurd ; but at the same time they help to show in what kind of spirit the proposed amendment was discussed by its opponents. This question is one that is bound to be re-opened at some future date, and in the meantime shipowners would do well to reconsider the entire facts of the case. If they will do so fairly we think they will come to the conclusion that, on the whole, they would lose less by a change than they generally suppose. They need not fear to dispense with the services of the unofficial runners who now deposit their crews on board, and pay themselves for their trouble by means of robbery pure and simple. It is idle to hold forth on the inestimable value of "freedom of contract" as an abstract principle. Some of them may possibly deceive themselves by such plausible arguments ; they may occasionally deceive others ; but those who take the trouble to study the question carefully will not fail to discover that the fear of losing the crimp's services, and the possibility of higher wages being demanded, and not the danger of infringing abstract principles, are the considerations which possibly lie at the root of the difficulty.

BOOKS RECEIVED.

We have received the annual *Tide Tables for the British and Irish Ports*, and the *List of Lights of the British Islands* for 1876, both of which official publications are as usual very carefully compiled, and cannot fail to be of great service to the shipping community. They are both to be obtained from Mr. J. D. Potter (Agent for the sale of Admiralty Charts, &c.), 81, Poultry, E.C.

Annales Hydrographiques. Published at the Dépôts des Cartes et plans de la Marine. Paris. 1875.

A VERY useful collection of information connected with the Hydrography of various parts of the world. Containing also an interesting account of a voyage of circumnavigation of the frigate "*La Virginie*," a long scientific paper, bearing on the practice of navigation, and details of all recent changes in lights, buoys, and fog-signals, and of newly discovered dangers in various parts of the world.

Rivista Marittima, for November, 1875. Rome: Tipografia Barbera.

Cosmos. The geographical journal of M. Guido Cora, published at Turin. 1875.

BOTH of these Italian publications are remarkable for their fulness of information. The respective editors seem to keep their eyes open to what is going on in all parts of the world in regard to maritime and geographical matters, and to publish the details in their valuable journals.

NOTICE ABOUT A HIGHLY IMPORTANT PRACTICAL APPLICATION OF PHYSICAL POWERS TO AN INSTRUMENT WHICH, INDEPENDENT FROM THE MAGNETISM. OF THE EARTH AND FROM THE SHIP'S IRON, POINTS OUT THE TRUE COURSE OF THE VESSEL.

SUCH is the very creditable English in which Monsieur L. Janse Bz, of Amsterdam, introduces to public notice an invention intended to supersede the magnetic compass as now used, for he tells us in the text that "whereas the actual compass is directed by magnetism, it is in this case a well-known physical power that puts in motion the whole of the wheel-work." The mode of application of this physical power and the mechanism of the apparatus are not as yet made public, but we have been informed by the inventor that the principle upon which it is based is proved to be good in practice, although not as yet proved at sea. So far, therefore as we possess knowledge on the subject, we lay it before our readers for their information and consideration. We are never much inclined to be sanguine as to the success of an invention of the sort so dimly described; but an apparatus is, we learn, actually manufactured. Vague and unapplied theories in regard to the possibility of constructing an instrument of the same nature, have come under our notice at different times. The chief merit claimed for this present instrument is, that it will show the true course of a vessel, and "works with equal intensity on any spot of the earth," independent of deviation and variation. It is obvious that an instrument capable of such performance would be in the highest degree valuable, and we shall be glad to chronicle the further attempts of M. Janse in developing his invention, so as to make it practically serviceable.

MONTHLY ABSTRACT OF NAUTICAL NOTICES.

No.	PLACE.	SUBJECT.
1	ADRIATIC—Pasman Strait—Babac Island	Alteration in Position and Colour of Light.
2	WEST INDIES—Puerto Rico—Mayagüez Bay	Mole Lights.
3	CHINA—Shantung Promontory	Rock awash off.
4	AUSTRALIA—New South Wales—Sugarloaf Point	Establishment of a Light
5	IRELAND—East Coast—Kish Bank	Light-Vessels and Buoys marking Vanguard Wreck.
6	NORTH SEA—Elbe River—Cuxhaven	Establishment of Light-Vessel near.
7	NORTH SEA—Ems River—Borkum Flat	Establishment of Light-Vessel.
8	ADRIATIC—Veglia Island—Voechizza Point	Exhibition of Permanent Light.
9	ADRIATIC—Dalmatian Islands—Sestrise Rocks	Establishment of a Light.
10	UNITED STATES—Massachusetts—Vineyard Sound	Establishment of a Fog-Signal.
11	NEWFOUNDLAND—Port Basque—Channel Head	Further Notice of Light.
12	AUSTRALIA—Queensland—Cape Capricorn	Establishment of a Light.
13	AUSTRALIA—Queensland—Cape Bowling-Green	Probable Alteration in Light.
14	SPAIN—North Coast—Guetaria	Alteration in Light.
15	BRITISH GUIANA—Demerara	Alteration in Position of Light-Vessel.
16	WEST INDIES—Venezuela Coast—Little Curacao Island	Colour of Light.
17	WEST INDIES—St. Martin Island—Grande Bay	Establishment of Harbour Light.
18	AFRICA—South-East Coast	Sand Bank between Tugela River and Cape St. Lucia.

NAUTICAL NOTICES.

1.—ADRIATIC.—*Pasman Strait.—Babac Island.*—With reference to Nautical Notice, No 51 (February, 1875), on the establishment of a light on the west point of Babac island, the light is changed from a fixed red light to a *fixed white* light, and is now exhibited from an iron stand, at a distance of about 50 yards from the keeper's dwelling, towards the point, and is visible between the bearings of S.W. by S. (through south and east), and N.W. $\frac{1}{2}$ N.; it is elevated 22 feet above the sea, and should be seen 10 miles.

2.—WEST INDIES.—*Puerto Rico.—Mayagüez Bay.*—Two red lights are exhibited as leading lights on the mole head.

3.—CHINA.—*Shantung Promontory.*—Information has been received of the existence of a rock (*Rodney rock*) just awash at low water spring tides, lying 4 cables from the shore, off the north-east point of Shantung promontory, and in a direct line between the centre of the lighthouse and the eastern extreme (within the reef) of Alceste island.—The following bearings were taken from a boat alongside the rock, viz.:—North-

east promontory, S.E. by S. ; Abrupt bluff, West ; Western extreme of Alceste island, N.W. by N. $1\frac{1}{5}$ miles.

4.—AUSTRALIA.—*New South Wales.*—*Sugar-Loaf Point.*—A light is now exhibited from a lighthouse on Sugar-loaf point. The light is a *revolving white* light of the first order, attaining its greatest brilliancy *every thirty seconds* ; it is elevated 258 feet above high water, and should be seen 22 miles. In addition to, and below the revolving light, a *fixed green* light, of the fourth order, is exhibited from the same tower, for the purpose of warning vessels from the Seal rocks and adjacent dangers. Position, lat. $32^{\circ} 26' 10''$ S., long. $125^{\circ} 32' 20''$ E.

5.—IRELAND.—*East Coast.*—*Kish Bank.*—*Wreck of the Vanguard.*—With reference to Nautical Notice, No. 227 (November, 1875), on the establishment of a light-vessel and buoy marking the wreck of the *Vanguard*, the following additional particulars relative to the light-vessel, &c., have been issued :—The eastern light-vessel has been moved, now lies E.S.E., 2 cables from the wreck. A western, or inshore, light-vessel, has been placed W.N.W., 2 cables from the wreck. The *green revolving* light in each vessel attains its greatest brilliancy *every minute*. The eastern vessel is painted *green*, and the western *red*. Two wreck buoys also mark the position of the wreck, one placed N. by E. and the other S. by W., half a cable at right angles to the hull. Position of the wreck, lat. $58^{\circ} 18' 10''$ N., long. $5^{\circ} 46' 10''$ W. On the approach of a vessel steering towards the wreck, a gun will be fired from the eastern light-vessel and repeated until the course is altered. The signal of the Commercial Code, "You are standing into danger," (J.D.) will also be made, and kept flying until answered. The dangers of the wreck are as follows :—Mizenmast, 22 feet water at low water ; mainmast, 17 feet water at low water ; foretopmast, 8 feet above low water. On the foretopmast a spar is lashed, with a globe on top.

Caution.—Vessels are not to pass between the light-vessels.

Note.—On the 1st of February, 1876, the vessel marking the western (or inshore) position of the wreck will be removed.

6.—NORTH SEA.—*Elbe River*—*Cuxhaven.*—During the winter months a light-vessel will be moored near the Ball beacon, below Cuxhaven, and between the black buoy L and the white buoys Nos. 9 & 10. The light is a *fixed white* light exhibited from the mainmast. The vessel has three masts, is painted red, with the words "*Elbe*," on the sides in white letters, and will be distinguished in daytime by carrying a black wicker ball on the mainmast. Vessels can pass on either side of the light-vessel.

Note.—Vessels on leaving Cuxhaven must steer a direct course for the light-vessel, thence a N.W. course to the third light-vessel. On entering the river, reverse courses must be followed.

7.—NORTH SEA.—*Ems River—Borkum Flat.*—With reference to Nautical Notices, Nos. 141 and 175 (June and July, 1875), on the intended establishment of a light-vessel about the end of September, 1875, on Borkum Flat, off the entrance of the river Ems, the light-vessel is now in position and the lights exhibited. The light-vessel exhibits three *fixed* lights, on separate masts, viz., a *fixed white* light on the fore and mizen-masts, and a *fixed red* light on the mainmast. The red light is elevated 46 feet, and the white lights 86 feet above the sea, and they should be seen 8 miles. A riding light is carried on the fore-stay about 5 feet above the rail. In the day-time, the vessel carries a black globe on the fore and mizen-masts, and a pyramidal basket cage on the mainmast. The vessel is moored in 18 fathoms, bearing N. by W. distant 18 miles from Borkum lighthouse. Position, lat. $53^{\circ} 51' N.$, long. $6^{\circ} 26' E.$ In foggy weather a bell will be sounded for *one minute*, with intervals of *two minutes*.

Note.—When a vessel is observed steering a wrong course, two guns will be fired in quick succession, and the danger signal of the International Code hoisted. When, from any cause the light-vessel is not in her station, the distinguishing day marks and the lights will not be exhibited.

8.—ADRIATIC.—*Veglia Island.—Voschizza Point.*—With reference to Nautical Notice, No. 135 (June, 1875), on the exhibition of a provisional light, pending the completion of a lighthouse, then building, on Voschizza point, Canale de Maltempo, the permanent light is now exhibited, and the provisional light discontinued. The light is a *fixed white* light, elevated 31 feet above the sea, and should be seen 8 miles. The lantern is fixed on an iron stand attached to the keeper's dwelling. Position, lat. $45^{\circ} 14' 20'' N.$, long. $14^{\circ} 35' 30'' E.$

9.—ADRIATIC.—*Dalmatian Islands.—Sestrize Rocks.*—A lighthouse is now being constructed on the north-western extremity of the largest of the Sestrize (Le Sorelle) rocks, south side of the entrance to Port Tajer, from which a light will be exhibited. The light will be a *fixed white* light, varied by alternate flashes of *white* and *red*, every minute.

10.—UNITED STATES.—*Massachusetts.—Vineyard Sound Light-Vessel.*—A steam fog-whistle is now established on board the Vineyard sound light-vessel, which in thick and foggy weather will give blasts of *four seconds'* duration, followed by intervals of *twenty-six seconds*.

11.—NEWFOUNDLAND.—*Port Basque.—Channel Head.*—With reference to Nautical Notice, No. 94 (April, 1875), on the establishment of a light on Channel head, Port Basque, further notice has been given concerning the said light, viz.:—The light is a *fixed red* light, elevated 90 feet above the sea, and should be seen 12 miles. The tower is built of wood. Position, lat. $47^{\circ} 33' 45'' N.$, long. $59^{\circ} 7' 10'' W.$

12.—AUSTRALIA.—*Queensland*.—*Cape Capricorn*.—A light is now exhibited from a lighthouse on Cape Capricorn. The light is a *revolving* light of the third order, attaining its greatest brilliancy *every minute*, and elevated 310 feet above the sea.

13.—AUSTRALIA.—*Queensland*.—*Cape Bowling-Green*.—In consequence of changes having taken place in the outlying banks off Cape Bowling-Green, causing the sea to make serious inroads on the shore, it may be found necessary to remove the lighthouse, in which case a temporary *fixed* light will be exhibited instead of the revolving light at present shown, until permanent arrangements can be made. The temporary light would be seen 9 miles.

14.—SPAIN.—*North Coast*.—*Guetaria*.—The light on Auton island is now observed landward between the bearings of S.E. $\frac{3}{4}$ E. and N.W. $\frac{3}{4}$ W.

15.—BRITISH GUIANA.—*Demerara*.—In consequence of a vessel having sunk near the light-vessel off the entrance of Demerara river, the light-vessel has been moved in a north-westerly direction about three-quarters of a mile, and now lies in 19 feet at low-water spring tides, with Demerara lighthouse bearing S.S.W. $\frac{1}{4}$ W., distant 10 miles, and two cables north of the wreck.

Note.—Vessels should avoid passing to the southward of the light-vessel.

16.—WEST INDIES.—*Little Curaçao Island*.—The light on this island is a *fixed red* light.

17.—WEST INDIES.—*St. Martin Island*.—*Grande Bay*.—A *fixed white* light is exhibited from a lantern in the old fort of Amsterdam, on the west side of Grande bay; it is elevated 150 feet above the sea, and should be seen 8 miles.

18.—AFRICA.—*South-east Coast*.—Information has been received of the existence of a shoal lying $1\frac{1}{2}$ miles from the shore, nearly midway between Tugela river and Cape St. Lucia, and on which the Union steamship *Zulu* recently touched. Immediately after the *Zulu* touched, the lead was hove, but no bottom found with 10 fathoms; the sea at the same time was observed breaking to seaward in a north-east and south-west direction for a distance of 300 yards. This danger (*Zulu shoal*) lies in the track of vessels trading between Natal and Delagoa bay. The approximate position is, lat. $28^{\circ} 51' S.$, long. $32^{\circ} 4' E.$

HYDROGRAPHIC NOTICES PUBLISHED BY THE ADMIRALTY.

No. 33.—*Red Sea*.—Information relating to the navigation of the Musawwa, and thence to Bab-el-Mandeb Straits, derived from reports made by Commander Wharton, Her Majesty's surveying

vessel *Shearwater*, and Lieutenant Gray, Her Majesty's surveying vessel *Nassau*, 1874-1875; also from published remarks of Captain Kühne, commanding the German vessel of war *Ariadne*, 1874.

No. 34.—*D'Entrecasteaux Islands and North-east Coast of New Guinea.*

—Information relating to the above-named localities from the reports and surveys received from Lieutenant L. S. Dawson, Admiralty surveying officer, attached to Her Majesty's ship *Basilisk*, Captain John Moresby, R.N., 1874.

No. 35.—*New Granada.—Magdalena River.*—Information relating to the navigation of the entrance of Magdalena River, and thence to the town of Barraquilla. By Commander Rodney M. Lloyd, Her Majesty's ship *Bullfinch*, 1875.

CHARTS, &c., Published by the Hydrographic Office, Admiralty, to the end of December, 1875, and sold by the Agent, J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill.

No.	Scale.		s.	d.
263	m = 0·32	Labrador :—Cape St. Charles to Sandwich Bay, with 4 Plans	2	6
103	m = 3·0	Fiji Islands :—Ngaloa and Koro Levu Harbours, Kandavu Island	1	6
D		North Sea and Baltic Index Chart	0	6
1848	m = 7·0	Spain, South Coast :—Port Malaga	1	0
226	m = 6·0	Labrador :—Domino Run	1	6
690	m = $\left\{ \begin{array}{l} 1·0 \\ 3·0 \end{array} \right\}$	Africa, East Coast :—Cape Delgado to Mikindani Bay, with Plan of Msimbati Anchorage and views	2	6
1492	m = 5·75	Adriatic :—Brindisi Harbour, with views	2	0
251	m = 2·0	Labrador :—Curlew Harbour and Approaches	1	6
500	m = 3·0	West Indies :—Port Ponce, Porto Rico Island	0	6
1808	m = 0·2	Africa, East Coast :—Cape Delgado to Kilwa	1	6

OUR OFFICIAL LOG.

GRAIN-LADEN VESSELS.

Our readers will observe, from the following instructions just issued by the Board of Trade, that prompt steps are being taken to ascertain the condition in which grain-laden vessels arrive in the ports of the United Kingdom. The particulars in each case are to be supplied by the Local Surveyors, who will be informed by the Collectors of Customs of the arrival of grain ships where the cargo has shifted, or if there has been any other casualty on the voyage to this country :—

“ GRAIN-LADEN VESSELS.

“The District Officer of the Board of Trade at Hull is requested to instruct the Surveyors in his district to take steps and make arrangements in order to obtain information of the arrival of every grain-laden vessel respecting which there are reasonable grounds for believing that any of the provisions of Section 3 of the Merchant Shipping Act, 1875, have not been complied with, and to survey the ship and her fittings at once and report full particulars of each case to Captain Pryce, showing carefully the nature and extent of the damage or shifting, and the cause, as well as the arrangements or absence of arrangements made on board for preventing the shifting of cargo. Captain Pryce should forward the Surveyor's report to this department, with such observations of his own as he may think necessary or desirable.

“As great dispatch is generally used in unloading grain-laden ships, and as the Surveyor should, if possible, make his first visit before the unloading is commenced, it will be well for Captain Pryce to visit the Ports in his district, and to confer with the Collectors of Customs so as to ensure co-operation in reporting to the Surveyor the arrival of grain-laden ships which have met with casualties, or in which the cargo has shifted.

“ THOMAS GRAY.

“ Nov. 30, 1875.”

[Similar instructions have been sent to the Officers of the Board for other districts.]

MARINE DEPARTMENT, BOARD OF TRADE, WHITEHALL GARDENS, DECEMBER, 1875.—The Board of Trade have received, through the Secretary of State for Foreign Affairs, a despatch from Lieut.-Colonel Siborne, containing the following translation of a regulation which has been adopted by the Danube Commission :—“ With reference to the

decision of the European Commission of the Danube of the 18th May, 1875, which adopted provisionally an addition of 7 per cent. to the taxation of those vessels which should not be furnished with papers or certificates similar to those issued for the Suez Canal, taking into consideration the results of numerous comparative measurements, the European Commission adopts definitively the figure of 11 per cent. for the additional taxation of such vessels. To take effect from the 1st of March, 1876."

TRANSFER OF BRITISH SHIPS TO FOREIGN FLAGS.—The following is the substance of a communication addressed from the Custom House, London, to the collectors at the outports on the subject of the transfer of British ships to foreign flags:—"Custom House, London, 30th November, 1875.—The Lords of the Committee of Privy Council for Trade having notified to this Board that at a recent inquiry into the loss of a vessel, sufficient evidence was forthcoming to leave no doubt that the vessel had been fraudulently transferred from British Registry, and that the port or place to which she was stated to belong had no existence, I am desired by the Board to direct you, with reference to the 102nd Section of the Merchant Shipping Act, 1854, to take particular care, before the grant of a clearance or transire for any foreign ship, that the master of such ship has declared the name of the nation to which he claims that the vessel belongs, and that the name of such nation be properly inscribed on the clearance or transire. As regards vessels clearing outwards for foreign, such declaration will be made as heretofore on the Content, or Ballast Declaration, Form, No. 92, as the case may be; but before any transire be granted for a coasting voyage, you are to require the agent applying for the same to produce to you a declaration, in the annexed form, made and signed by the master, in the presence of and attested by a competent witness, showing the name of the country to which the vessel belongs. The declaration is to be retained by you and filed. I am further to direct you to give special attention to all cases of transfer of British vessels to a foreign flag; and whenever, in consequence of the continued employment of the vessel in the same character of trade as before, or for other causes, you have good reason to suppose that there is no *bona fide* change of ownership, but only a fraudulent, or colourable, transfer to a foreign flag, you are fully to report to the Board of Trade the circumstances and the grounds on which the transfer is supposed to be colourable only."

MARITIME LAW.

MARINE INSURANCE.—THE "JOHN GEORGE."—TRANSFER TO A FOREIGN FLAG.—(Before Lord Curriehill, November 19, 1875.)—By Policy of Insurance, dated September 3, 1874, the pursuers, Messrs. William

Hutchinson and Co., part-owners of the vessel *John George*, of Newcastle-on-Tyne, insured said vessel in the defenders' company, through Messrs. John and Robert Catto, shipbrokers in Aberdeen, the vessel being on a voyage from the Tyne to Cronstadt and back again to the East Coast of Great Britain. The sum for which the vessel was insured with said company amounted in all to £725. Thereafter the *John George* proceeded to Cronstadt, whence she took a cargo of deals and battens, and sailed for Leith. During the voyage a violent gale arose, causing a heavy sea, in which it is alleged many vessels were lost; and on the 9th December, 1874, during the gale, the *John George* was driven ashore on the coast of Northumberland, and became a total wreck. On account of the sale of the wreck the pursuers received £80 2s. 8d., of which £28 4s. was the share accruing to the defenders as underwriters, leaving the sum of £701 16s. due to them by the defenders under the policy, which they refused to pay, and the present action was accordingly raised to enforce payment of the same. The principle defence was that when the vessel was insured by the defenders the owners concealed the fact that she had been transferred from the British to the Belgian flag, the effect of which was to deprive them of the benefit of having the vessel, while it was insured, under the vigilance of the Board of Trade. A long proof was led in the case, and the Lord Ordinary intimated to-day that he was of opinion that the defenders were entitled to be assoilzied from the conclusions of the action on the ground that the policy failed to disclose important facts—among others, the transfer—rendering it void. His Lordship holds that the withholding of the fact of the transfer of the vessel was a matter of importance which ought to have been disclosed to the company, and more especially as in the evidence it was admitted that the transference had been made to get rid of the interference of the Board of Trade. In respect of the judicial willingness of the defenders to repay the premiums, his Lordship finds them entitled to expenses.—Counsel for pursuers, Mr. Trayner and Mr. Macintosh. Agents, Rhind and Lindsay, W.S. Counsel for defenders, Mr. Lancaster and Mr. M'Lean. Agents, Morton, Neilson, and Smart, W.S.

JUDGMENT.—The Lord Ordinary finds—1. That by the Policy of Insurance, dated 8th December, 1874, the pursuers, Messrs. William Hutchinson and Co. (Newcastle), who were part-owners of the vessel *John George*, in name of themselves and the other owners, effected, through Messrs. John and Robert Catto, shipbrokers, Aberdeen, an insurance against the loss of the vessel at and from the Tyne to Cronstadt, while there, and thence back to the east coast of Great Britain, and that the vessel was underwritten by the defenders in various sums in all amounting to £725. 2. That, therefore, the *John George* proceeded to

Cronstadt, and thence sailed for Leith ; that during the voyage a severe gale arose, in consequence of which the *John George* was, on December 9, 1874, driven ashore on the coast of Northumberland, and became a total wreck. 3. That the pursuers then claimed from the defenders, as underwriters, the sum of £701 16s. as the amount due under the policy, but that the defenders have declined to make any payment under the policy, in respect that material facts were concealed from them by the pursuers at the time the insurance was effected. 4. That in April, 1873, the pursuers, through John and Robert Catto, had effected in Aberdeen a previous insurance on the *John George*, and that the pursuers on that occasion, through the Messrs. Catto, informed the underwriters that the vessel was registered at South Shields, and referred them to the French Bureau Veritas, which corresponds to the Lloyd's Register in England, in which the *John George* was entered as an English ship, registered at South Shields, and having been built at Sunderland in 1837, and as standing in April, 1873, as having been classed in 1873 of the second class for two years. 5. That in the French Bureau Veritas current at the date of the policy sued on the *John George* still stood as a British ship of the same class as at the date of the former policy, in April, 1873, and that the defenders, nine of whom had been underwriters on the policy sued on, believed that the *John George* was a registered British ship, and that no information to the contrary was communicated by the pursuers to Messrs. Catto, or reached any of the underwriters. That prior to the 28th July, 1874, the *John George* had been transferred to a Belgian owner by a fictitious sale and a mortgage effected by J. P. Lindsay, then the managing owner and part-owner of the vessel, and that the vessel was on said register in Belgium as a Belgian vessel, and continued so registered at the date of the wreck, and that the British registry of said vessel was closed on 25th August, 1874. 6. That the transfer of ownership and change of registry were effected for the purpose of excluding the *John George* from the diligence of the Merchant Shipping Act of 1873, which empowered the Board of Trade to inspect and detain British vessels which were believed to be unseaworthy. 7. That such inspection by the officers of the Board of Trade is calculated to afford protection to underwriters in Policies of Insurance on British vessels for a single voyage, effected without any special survey on behalf of the underwriters. 8. That the effect of the transfer of the ownership of the vessel and change of registry were, or ought to have been, within the knowledge of the pursuers at the date of their effecting the Policy of Insurance sued on, and were not communicated by them to the defenders. 9. That the transfer of vessel and the change of flag were material facts, the knowledge of which would have materially influenced the underwriters in determining whether to accept or decline the insurance when proposed

and the amount to be charged if the risk were accepted, and that it would have been reasonable in them to have been so influenced. Therefore, in point of law, finds that the policy sued on is voided in respect of the aforesaid concealment of material facts, and that the pursuers are not entitled to recover the sums insured by the policy; but finds, in respect of the minute for the defenders, that the defenders are willing to repay to the pursuers the premiums paid by them on the policy, which amount to £45 17s. 6d., decerns against the defenders for payment of the same accordingly; *quoad ultra* assoilzies the defenders and decerns, finds the pursuers liable to the defenders in expense.


In a note, his Lordship says: "In dealing with cases like the present the questions whether there was concealment from the underwriters, and whether the facts concealed were material—that is to say, whether everything was disclosed which would affect the judgment of a rational underwriter, governing himself by the principles and calculations under which underwriters do in practice act, are proper jury questions to be decided on the evidence adduced. It appears to me to be clearly in this case proved that the underwriters believed and entered into the policy of September, 1874, in the belief that the *John George* was then a British registered ship, which she undoubtedly was at the date of the former policy effected through the same brokers, and with substantially the same underwriters in April, 1873. It is also proved that J. P. Lindsay, who was in July, August, and September, 1874, principal owner of the vessel, by means of a nominal sale to a person in Belgium of the name of Watson, and by a mortgage granted by Watson in his favour, so arranged matters that the *John George* became ostensibly the property of a Belgian owner, and was registered in the Belgian Registry as a Belgian ship. All this was done by the 28th July, 1874. It is also proved that the change of ownership and the flag was made expressly for the purpose of exempting the vessel from inspection by the Board of Trade surveys under the powers of the Merchant Shipping Act, 1873. The result of such inspection has been that very many ships have been prevented from sailing on the ground of being unseaworthy, and naturally they were not merely made barely seaworthy, but received such additional fittings and repairs as greatly to conduce to their safety on the voyage. . . . Now, was the change of ownership and flag material? Several underwriters were examined by the pursuers for the purpose of showing that according to the practice of underwriters change of flag made no difference in a risk, but most of these witnesses agreed in saying that vessels under a foreign flag were very rarely insured in this country, and most of the risks which they were in the habit of underwriting on British ships were on yearly policies running from February to February, and that in taking the risk they were not guided by the vessel's class in Lloyd's Registry

or any foreign registry, but by an actual survey of each ship made on behalf of the underwriters, previous to effecting or renewing each insurance. . . . I think that the whole evidence leads to this result, that the circumstance of the flag being changed on the eve of the vessel sailing, and avowedly for the purpose of escaping the Board of Trade supervision, was a circumstance so material that it ought to have been disclosed to the underwriters before the policy was effected, and that the failure to disclose vitiates the policy. It may be true, as the pursuers allege, that the Board of Trade inspection does not necessarily secure more than that a ship when she sails is seaworthy, and that as the defenders did not maintain that the *John George* was unseaworthy when she sailed, and as positive proof of her seaworthiness had been adduced by the pursuers, the non-communication of the change of flag is not material. But I think this argument ignores the principle laid down in the passage from Arnold, which is clearly stated in 'Marshall on Marine Insurance,' page 359 (Ed. 1861)—namely, that 'concealment so vitiates a policy that it will afford the insured no remedy even from a loss arising from a cause unconnected with the fact or circumstance concealed; for the concealment is to be considered not with reference to the event, but to its effect at the time of making the contract.' It may, therefore, be quite true that even if the registry had not been changed, and if the vessel had been inspected by the Board of Trade, she would have been found seaworthy, and allowed to sail, so that, in point of fact, the loss may not have been attributable to the want of inspection. But the question to be decided is whether or not the removal of this old and low-class vessel from the control of the Board of Trade on the eve of her leaving Great Britain, and shortly before the insurance was effected, would, if communicated, have influenced the mind of a rational underwriter in entering into the transaction. The import of the evidence is, in my opinion, that the facts, if disclosed, would have influenced the defenders, and have led them either to decline the risk altogether, or to undertake it, if at all, at a higher rate than that on which they agreed; and I think it would have been reasonable in them to be so influenced. On these grounds, I think the pursuers cannot recover under the policy sued on, which I hold to be vitiated by the concealment or non-disclosure of material facts which were or ought to have been within the knowledge of the pursuers when they effected the policy. As, however, the defenders offer to return the premiums paid by the pursuers, decree will be given in favour for that sum. But, as I do not think the pursuers are legally entitled to such return, the defenders will be assolizied from the conclusions of the actions *quoad ultra*, with expenses."

GENERAL.

UTILISATION OF THE SUN'S HEAT FOR INDUSTRIAL PURPOSES.—M. Mouchot, who has devoted the last fifteen years to the study of this question, thus arranges his solar receiver or generator. It consists of three distinct parts:—A metallic mirror with linear hearth; a blackened boiler, the centre line of which coincides with this hearth; and a glass casing which allows the solar rays to impinge upon the boiler, but prevents their being reflected. The mirror is in the form of a truncated cone, the generating line of which makes, with the axis, an angle of 45° . The base consists of a disc of cast iron, added for the purpose of counteracting the effect of the wind. In the centre of the disc rises the boiler, the height being equal to that of the mirror; it is made of copper, blackened on the outside, and is composed of two concentric casings, the largest of which is 80 centimetres (2 ft. $7\frac{1}{2}$ in.) high, and one smaller, 50 centimetres (1 ft. $7\frac{1}{2}$ in.), the respective diameters being 28 and 22 centimetres (11 and $8\frac{1}{2}$ in.). The feed-water occupies 1 annular space between the two casings. The volume of liquid should not much exceed 20 litres ($4\frac{1}{2}$ gals.), so as to leave about 10 litres for the steam chamber. The glass casing is bell-shaped, 85 centimetres high by 40 in diameter (2 ft. $9\frac{1}{2}$ in. \times 1 ft. $3\frac{3}{4}$ in.) and 5 millimetres (0.19 in.) thick. There is, therefore, a constant space of 5 centimetres (2 in.) between the boiler and the glass, which latter only adheres by its foot or rim to the bottom of the mirror. Thus arranged, the boiler should revolve, at the rate of 15 degrees in an hour, on an axis parallel to that of the earth, and also become gradually inclined on this axis in accordance with the declension of the sun. The following are the results achieved by the apparatus at Touraine. In ordinary fine weather, 20 litres ($4\frac{1}{2}$ gals.) of water introduced at 20° Centigrade (68° F.) at half-past eight o'clock, were turned into steam at a pressure of two atmospheres in 40 minutes. The pressure was then quickly raised to five atmospheres, a limit which it would have been dangerous to exceed in the boiler with which the experiment was being conducted. The steam was used for driving an engine working a pump, &c.; it also distilled five litres (a gallon) of wine in a quarter of an hour. It may be concluded, from the trial that, in our latitudes, the apparatus utilises from eight to ten *calorics* (32 to 40 English equivalents of heat) per square metre (1.19 square yards) per minute.—*Journal of Society of Arts.*

UNITED ACTION OF SHIPOWNERS.

INCE the first article in our present number was written, we have been favoured with the following programme for a general conference of shipowners, which will have been held at Glasgow before our magazine is published, but too late for us to comment upon the proceedings as fully as we shall desire to do. In laying the programme before our readers, we would observe that it contains the germs of an organisation which, if judiciously worked, may emancipate the shipowning interest from sentimental persecution and consequent oppressive legislative trammels, may be made to afford greater safety to ships and seamen than now exists, and at the same time may strengthen the hands of the Government who have to enforce the law. We heartily wish the shipowners success in their combination.

GENERAL CONFERENCE OF SHIPOWNERS,

To be held at Glasgow, in the Religious Institution Rooms, Buchanan Street, on Tuesday, 21st December, at one o'clock, p.m.

PROGRAMME.

At the first meeting of Central Committee, held on the 29th day of November, 1875, it was unanimously resolved—

“That the *basis* upon which all shipowners may unite is, that the time has arrived when a general codification of the Merchant Shipping Law may be pressed for, when all obsolete and unnecessary portions of the existing Statute Law relating to shipping should be struck out, and a definite code fixed which may prevent the perpetual and harassing changes in the law, as now made, or proposed, in each Session of Parliament.”

Judging from communications already received from influential shipowners in London, Liverpool, Hull, &c., it is assumed that this *basis* will be uniformly accepted by the shipowners throughout the kingdom.

It is proposed, therefore, to confer upon—

I. The necessity for immediate action being taken by the shipowners of the United Kingdom as a united body to prevent further piecemeal and repressive legislation, and to bring the existing unsettled and harassing state of matters to an end by respectfully insisting on the Statutory Shipping Law being definitely settled and reduced to a workable code in the ensuing Session; and

II. The means to be adopted for carrying out this object:—

- (1) By explaining to and adducing evidence to members of Parliament and the public, in such manner as may be deemed best, that grievances

do exist, so serious as to imperil the existence of the business of shipowning as a trade in this country and tending unmistakeably to throw the whole carrying trade of this country into the hands of foreigners, to the consequent injury both of masters and men in the shipbuilding, engineering, and other trades more immediately depending upon the shipowning trade, and to the country generally, by the efficiency of the Navy being threatened by the supply of seamen being reduced; and by directing the serious attention of the Government to the necessity of providing for the marine legislation of the country being originated and carried out by officials and members of the Government really conversant with the subject.

- (2) By the General Conference appointing an influential representative committee to watch the course of legislation in the ensuing Session to press on Government the necessity of fixing the Statute Law relating to merchant shipping, by revising the existing statutes, and striking out all that is obsolete and unnecessary, and thereafter to confer with the Government upon the proposed code after the Statutory Law has been so dealt with; and
- (8) By urging the Board of Trade to frame regulations for the guidance of their officials so as to ensure that the law will be enforced with uniformity throughout the Kingdom.

These general ideas are thrown out for the consideration of members. Further and better means may be devised at the Conference.

It is desirable that the General Conference should assure the Government that on the foregoing fair and reasonable suggestions being carried out, the influence of the shipowners as a body shall be used to support the Government in all necessary measures to insure the safety of life and property at sea.

It is proposed further to confer upon and, if deemed advisable, to pass resolutions against—

- (1) All interference by the Legislature with the law of Marine Insurance as it presently exists; and
 - (2) Generally with any matter relating to shipping which is not already the subject of Statutory enactment.
-

THE
NAUTICAL MAGAZINE.

VOLUME XLV.—No. II.

FEBRUARY, 1876.

SHIPOWNERS' COMBINATION.

IN our number for January we directed attention to the absence of cohesion and concerted action amongst ship-owners at a time when the public mind has been excited by gross misrepresentations of the conduct and purposes of our carriers by sea, and when Parliament is about to be invited to amend in some important respects the law relating to merchant shipping ; and we did not hesitate to point out at the same time the danger in which the whole shipowning community is placed of having severe legislation directed against it, by the persistent disregard of the law by some unscrupulous members. Since the year has opened, however, there is evidence that shipowners are becoming alive to their position, and that there is a disposition amongst them to invite co-operation and to adopt and pursue something like a settled policy. We shall not be sorry if any words of ours have contributed to bring about this satisfactory result. Conferences held in Liverpool and Glasgow towards the close of December have been followed by similar meetings in London, in Dundee, and in Newcastle, while it has been announced that a general congress of shipowners, at which all the outports will be fully represented, will assemble in London probably before the meeting of Parliament, to consider the question of approaching legislation and to decide upon a definite course of action. So far as we can judge the statements put forward at the meeting above referred to, that emanating from the Committee of the Liverpool Shipowners' Association contains not only the fullest expression of opinion, but the most intelligible and best considered plan of action. The Liver-

pool shipowners commence with the assertion that the business of ship-owning is "seriously prejudiced, harassed, and hampered by recent legislation, and in the present crisis it is the duty of shipowners to unite for their common protection, and to submit to Government a statement of their views respecting all matters affecting their interests." They then proceed to say that in their opinion, at least, "the trade of ship-owning is conducted as honourably as any trade or profession in the kingdom," that its progress should not be arrested but should be freed from those trammels which recent legislation has imposed upon it. Coming to particulars, they say, that it is very desirable that there should be a general codification of the law of merchant shipping, that all obsolete and unnecessary portions of the existing Statute Laws should be struck out, and a definite code fixed. As regards overloading and unseaworthiness, the Liverpool shipowners say that such cases rarely exist with the intention of losing vessels and recovering from the underwriters, and that where they are found the law of the land is strong enough to deal with offenders. The theory of a hard and fast load-line, to be applied to all ships alike, they reject as obviously unjust. They think that the Board of Trade should only interfere in cases of gross or serious overloading. They do not object to the load disc or shipowners' load-line, but they would only regard it as a matter entering into the agreement between owner and seaman, and not as having any further bearing upon the question of the saving of life and property at sea, or as fixing a further responsibility upon the shipowner. The objections to surveys of unclassified ships are the same in kind, though perhaps not in degree, as those which lie against the load-line. Such surveys should have special reference to the trade each vessel is engaged in, and be subject to appeal to a Local Court or Committee of Reference, to be nominated by the shipowner and the Board of Trade, with power to call in an umpire. On the subject of ships' crews this statement contains some very important suggestions; for example, that advance notes should be abolished, that before a seaman should be allowed to rate as A.B. he should show satisfactory proof of at least four years sea service, that a benefit or pension fund for seamen should be established, that the present law confers the power of detaining a ship on too limited a number of seamen, and that the number should not be less than half the crew. The subject of marine insurance is referred to, but only to direct attention to another statement having special relation to this question issued by the Liverpool Association in April, 1875. To the views therein set forth, and which are directly opposed to any interference with the existing Law of Insurance, the Association still adheres.

Accepting, as perhaps we may do, the statement of the Committee of the Liverpool Association, as for the most part the platform of the ship-

owners, we do not see that, with the exception of the contemplated change in the Law of Marine Insurance, there is any direct antagonism to the views of the Government, so far as they have been indicated in the matter of approaching legislation. To us it seems that the tendency of modern legislation relating to merchant shipping has been to relieve the Government from responsibility in respect to the condition, character, and management of shipping, and to cast that responsibility, where unquestionably it ought to rest, upon the owners of shipping property. No doubt the pressure of events and of an ephemeral clamour has resulted in exceptional legislation and the committal to the Board of Trade of extraordinary powers, to be employed for a special purpose. But the manifest desire of the Government, as evidenced in the Bill of last session, and even in the short measure which at its close became law, has been to escape from the enforced position which they have too long occupied, and to take up their natural position as simply administrators of the law. The shipowners object to the compulsory survey of ships classed or unclassed, and so, as we understand it, do the Government. The latter well know that such a system would be impracticable, and, if practicable, would be mischievous in the extreme, that to be performed effectively would require an organisation and an outlay which the nation would not sanction, and, if performed, would simply enable the shipowner to shift the consequences of his own short comings on the Government officials. The shipowners object to a fixed load-line, as a delusion and a snare, and so, we need hardly say, do the Government, who with all the pressure brought suddenly to bear upon them by a burst of popular frenzy, could not be induced to sanction the principle in any form unless applied by the shipowner himself, and on his individual responsibility. As regards the survey and detention of ships under the provisions of the Acts of 1873 and 1875, the only objection put forward by the shipowners as a body, seems to be entirely against the administration of the law—that it is sometimes committed to incompetent hands, that unwarrantable delays occur in such surveys, and that the carrying trade is thereby, and in some directions, much embarrassed. But these are objections of detail, not of principle. On the necessity for the introduction of some system for creating and maintaining a supply of seaworthy sailors, of gradually supplanting the present crowd of worthless sea labourers by a body of men to whom the navigation of ships may be entrusted, and on whom competent shipmasters may at all times rely—the shipping interest is absolutely agreed—the only question is as to the mode in which an extensive and well-considered training system should be carried out. In other words, a question of ways and means. And we do not believe that a law which would make it compulsory on shipowners to take apprentices, or to pay a tonnage rate in aid of

a training system, would encounter any serious opposition from the shipping interests. These men are sufficiently enlightened to know that it is not fair to ask the general taxpayers of the country to provide labour for a particular branch of industry, and that if men are required on any emergency for the defence of the country, the constitution places the means of procuring them in the hands of the advisers of the Crown ; but they also know that if the process of deterioration now at work amongst merchant seamen is suffered to go on much longer foreign seamen must take the place of British hands, or the carrying trade will become the most hazardous in which any man can be engaged. We have elsewhere expressed our views on the subject of an alteration in the Law of Marine Insurance, and on that question also we do not apprehend that the shipowners are more at issue with the Government than the underwriters. We are quite sure that the subject ought not to be approached by the Legislature without further and more exact information than has yet been laid before Parliament—and that a Royal Commission or Committee of Inquiry should precede any attempt to interfere with the Law of Insurance Contracts. The question is a very large and difficult one ; it is one, moreover, as was rightly observed by the Royal Commission on Unseaworthy Ships, which should not be interfered with without an understanding, at least with foreign Maritime States—a suggestion not lost sight of by the Government—and the results of which will, no doubt, be made apparent before Parliament is invited to pronounce a definite opinion on the subject. Lastly, we observe that the codification of the Merchant Shipping Law is a favourite demand with the representatives of the ship-owning body. Such a work can only be fitly entrusted to a public department or a law commission ; it could never be properly carried out by a Parliamentary Committee. We by no means deny the necessity which exists for this work ; but in presence of the fact, that a most concise digest of Merchant Shipping Law has been prepared and published under the auspices of the Board of Trade, and that any codification at the present time would be unduly tinted with “humanitarianism,” the subject can afford to stand over. What the shipowners have a right to demand, and demand peremptorily, is that there shall no longer be any uncertainty as to the course which the Legislature may be invited to pursue in respect to the carrying trade by sea, that the industry with which they are identified shall not be “hung up,” so to speak, with the prospect of legislation, and that an honest attempt shall be made that the approaching changes in the law, so far as they may extend, shall be final.

THE STRENGTH AND STRAINS OF IRON SHIPS.

THE subject which we propose considering in this article has never had a greater amount of interest attached to it than at the present time, for the employment of iron as the material in the construction of vessels during the last half century has brought about such a change in the Mercantile Marine, that it demands our most serious attention.

It is now sixteen years since the well-known pioneer in iron ship-building—the late Sir William Fairbairn, Bart.—directed attention to this subject in a very valuable paper read by him at the Institution of Naval Architects, and during the time that has since elapsed it has been further considered and elucidated by other scientific writers, such, for instance, as the late Professor Rankine, in a work on “Shipbuilding,” edited by him in 1866; also by Mr. E. J. Reed, C.B., and Mr. William Froude, F.R.S., in many of their interesting papers and writings.

It seems remarkable that, in the face of such exact and valuable information on the subject, greater efforts have not been made to construct our iron merchant ships on correct and scientific principles, and that more care has not been exercised in the distribution of their material, so indispensable in rendering them capable of resisting those sea-going strains to which they are most certainly liable.

We have no desire to undervalue the steps that have already been taken in this direction, particularly those of the classification societies; but, on the contrary, it is our earnest wish, by drawing attention to the subject, to stimulate all interested in the Mercantile Marine of this country to use every effort to increase its security.

We, therefore, propose to place before our readers a brief description of the structure of iron ships, the strains to which they are liable, and certain rules deduced from scientific principles necessary to be observed in their construction.

The most essential part of the structure of an iron ship, in point of strength, is the *skin plating*, for resistance against the principal straining actions depends chiefly on the amount of its transverse sectional area, or, in other words, its thickness. The *upper deck* (when of iron) and *upper beam stringers* supplement the skin plating, and may be made to assist very greatly in the resisting of the longitudinal bending strains. But it is to the skin plating that iron ships owe most of their strength; it needs, however, to be properly stiffened, and, when that is done, it is capable (if sufficient in thickness) of resisting strains in every direction. The *framing* stiffens the shell, and it is of two kinds, *longitudinal* and *transverse*, the former consisting of the *keel*, *keelsons*, *stringers*, and all material

placed in a longitudinal direction ; and the latter of the *frames, floors, deck beams, and stanchions.*

The keelsons and stringers afford great assistance to the bottom plating against buckling by compression under *hogging* strains, and more so when they are connected with it in a continuous or intercostal manner, as the case may be, and not merely fitted and made to *ride* upon the floors and along the reverse frames. And the upper decks, when of iron, and also the beam stringers and sheer strakes, render the topside plating great assistance against tension under similar strains. Wooden decks, both by their own direct resistance to compression, and by the support they give to the plates, when properly fastened, may be made to give material aid in enabling iron decks and wide beam stringers to withstand buckling by compression under *sagging* strains.

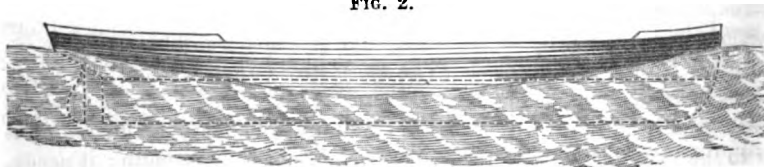
The most severe straining actions which a ship is subjected to afloat are those which arise from the unequal distribution of weight and buoyancy in a longitudinal direction, and may be said to occur when she is balanced in an upright position on the crest of a wave of such dimensions that her head and stern are left wholly unsupported in the centres of two successive wave hollows, when the upper parts of the hull are brought into a state of tension and the lower parts into that of compression, thus :—

FIG. 1.



This strain is technically termed a *hogging* strain, and the strain of next importance is termed a *sagging* strain. These are exactly opposite in character, and the latter occurs when the vessel is crossing a wave-hollow, with her bow and stern deeply immersed in the slopes of two successive waves ; the upper works are then called upon to resist a strain of compression, and the bottom parts that of extension, thus :—

FIG. 2.



It is under the straining action illustrated by Fig. 1, that the strength of a vessel should be chiefly considered, for in all ordinary cases the *sagging* strains are less severe than the *hogging* strains. And it will generally be found, that if a vessel be constructed of sufficient strength

to resist the hogging action, she will be capable of successfully meeting the sagging action.

Having thus far noticed the conditions of structure and strains, we will now briefly explain what calculations have to be made, in order to ascertain the strength of a vessel longitudinally; and for this purpose we shall have recourse to the work on *Shipbuilding, Theoretical and Practical*, edited by the late Professor Rankine.

The greatest bending moment has to be sustained at, or near, the *midship section*; and in order therefore to find the "*moment of resistance*" to the principal straining actions, it is necessary, in the first place, to calculate the *sectional areas of the longitudinally strained parts of the midship section*, and to find the *neutral axis, or centre of gravity, of those strained parts*; and, in the next place, to find the *moment of inertia of the effective section*, and to divide it by the distance of the most severely strained part from the neutral axis; the quotient being the *moment of resistance with the working modulus unity*.

To ascertain the *moment of resistance* of a ship with a given *working modulus of strength*, the *moment of resistance with the modulus unity* has to be multiplied by the *modulus of strength*; or to find the *actual modulus or greatest stress* on the most severely strained part, in tons on the square inch, in a given ship, under a given bending moment, that moment has to be divided by the *moment of resistance*.

In the calculations, the areas should be expressed in inches, and the distances in feet; and the sectional areas of the wooden decks, reduced to an equivalent area of iron by dividing by 16. For the *effective section*, a deduction of about *three-tenths* for rivet holes, should be made from the sectional areas of those parts of the material above, or below, the neutral axis, which are under tension, as the case may be; but no deduction need be made when they are under compression, as their whole sectional areas are then available.

With reference to the modulus of strength, Professor Rankine and Mr. Fairbairn were each of an opinion that the strain on the material in an iron ship should not exceed *one-fifth of its ultimate strength*, and accordingly, the *working modulus of strength* for the iron under tension would be 4 tons on the square inch, and for that under compression 2·4 tons.

The greatest bending moments, according to Professor Rankine, are proportional to the products of the *displacements and lengths*, and we find he has also stated, that the greatest *hogging* moment might be taken approximately at the following value:—

$$\frac{\text{Displacement} \times \text{length}}{20}$$

and that this would give a limit, which that quantity would not be likely to exceed in any case of ordinary occurrence in practice.

But it must be observed, that there are very few iron merchant vessels that would pass well under such a bending moment as this, and we know there are numerous instances of vessels, considered to be in possession of the highest qualities, in regard to strength, that if tried to this extent, would be found to have a strain on their upper works of over 9 tons to the square inch.

Other more recent writers who have investigated the subject, have proposed $\frac{1}{3}$ and $\frac{1}{5}$ of the product of the displacement by the length, as approximate limits to the *maximum hogging moment*. But the *actual modulus*, or greatest *stress*, when calculated by such formulæ, is after all only an approximation, as the value of the bending moment is made to depend on certain assumed dimensions of the wave on which the vessel is, for the time, supposed to be balanced. It must, however, be admitted that the greatest strains in a longitudinal direction are caused by waves of a length equal to that of the ship, but the *severity* of the strains depends upon the height and steepness of the waves.

Under these circumstances, we are of an opinion that it would be far more satisfactory to adopt a "standard modulus of strength" for comparison of ships, as proposed by Mr. J. MacFarlane Gray, in a paper read at the Institution of Naval Architects in 1875,* in which he states, with reference to the mode of calculating the modulus now adopted, that "the height of the wave is, to a great extent, an arbitrary assumption, and when the resulting moment is taken as equivalent to the weight (displacement) of the ship, acting with a leverage equal to a certain arbitrary proportion of the length, we are introducing a constant factor which may readily mislead, but can never assist when comparing different ships. If, however, the modulus of strength be taken as the strain per square inch produced by the weight of the ship, acting with a leverage equal to the length of the ship, on a girder having a section the same as that of the vessel, the number representing the strain in tons will be free from arbitrary factors, and must be the same for the same section, whatever may be the opinions of the calculator as to the height of the wave. It is that number which it is recommended should be used as a standard modulus of strength of construction of iron vessels.

"In large vessels the number found as above is sometimes as high as 250 tons for tension, and 150 tons for compression; and it is proposed that the character of the vessel, so far as is indicated by these numbers, should be represented as modulus $\frac{250}{150}$, the upper number referring to tension on the upper member of the girder, and the lower number referring to compression on the lower member.

* *Nautical Magazine* for January, 1876, p. 49.

"These numbers can be readily reduced to strain in tons per square inch on a wave, supposing the moment of strain to be equal to the product of the displacement in tons by a certain fraction of the length of the vessel, the same fraction of the number has to be taken as the strain. As one person may assume $\frac{1}{15}$ of the length as about the effective arm, while another may take $\frac{1}{10}$, the strain will be $\frac{250}{85} = 7\frac{1}{2}$ tons, or $\frac{250}{20} = 12\frac{1}{2}$ tons for the same ship, whereas if the number for comparison be left as 250, the same vessel will always have the same modulus, whoever calculates it."

Next, as to the position of the neutral axis of the midship section, we find it stated by Professor Rankine that it should be at about *five-eighths* of the depth below the gunwale, and *three-eighths* of the depth above the keel, and that "such is found to be actually the case in good examples of iron ships." It is found, however, that in vessels built during the last few years, the neutral axis is, in most cases, situated at about *three-fifths* of the depth below the gunwale, and *two-fifths* of the depth above the keel, which is a trifle higher than the position given by Professor Rankine.

We now come to a consideration of the extent to which *length* may influence the strength of ships. For some years past, it has been the custom in the construction of iron steamers to largely increase their length in proportion to their breadth and depth; and, consequently, we find that a steamship of the present day is not considered to be very excessive in her proportions if she be ten times her breadth, or eleven times her depth in length; and indeed, some of our large steamers are even more excessive in their lengths.

We do not think there would be any serious objection to such an increase in length, provided only a sufficient amount of material were added to the hull, and so disposed as to afford the requisite amount of strength. But, unfortunately, such conditions have not always been fulfilled, and in many instances owners and builders appear to have been working very much in the dark, and, in some cases, it is to be feared to a dangerous extent, with respect to the scientific principles involved in this matter.

The object of carrying a large cargo, at a high rate of speed, on a limited draught, has apparently been allowed to absorb too great a proportion of the displacement in some of our large steamers; and the fact that the proper structural weight of a *long* ship necessarily forms a larger percentage of the displacement than in that of a *short* one, appears to have been very much overlooked.

We are quite ready to admit that shipowners have, in very many instances, felt themselves compelled to adopt *long* vessels; yet, at the

same time, we feel bound to state that in their construction certain well determined scientific laws have not been sufficiently observed. The Suez Canal has, no doubt, been the cause of limiting the dimensions of *breadth* and *depth* of many steamers intended for its traffic ; but if, as is the case, it is necessary to build vessels of small midship section that have to pass through England's highroad to the East, then, it seems to us, that proper scientific means should be resorted to for supplying those vessels with a sufficient amount of strength to enable them safely to bear the strains we have already described ; and we are of an opinion that this could be done without any very great addition being made to their structural weight.

In dealing with the question of strains and structural strength, in respect to long vessels, Mr. Froude has taken a different view from that expressed by Professor Rankine, with reference to the bending moments, and has said* that, "if we first assume the *length* alone to vary, and suppose the ship thus altered to be subject to the operation of a proportionally enlarged wave, then it is obvious that the volumes or weights, inherent in the unequalized buoyancy which the wave creates, will be enlarged in the *square of the ratio of elongation* ; and since the leverage with which these volumes act in straining the ship will have at the same time been enlarged in the ratio of the elongation, the *bending moment* of the lengthened ship will be as the *cube of the elongation*.

"If we next assume the *breadth* of the ship alone to vary, it is plain that the straining weight will be enlarged in the simple ratio in which the breadth is enlarged, and the bending moment will follow the same ratio, since the leverage is unaltered ; the *bending moment* of the widened ship will be as the *enlargement of breadth*.

"Lastly, assuming the *depth* of the ship alone to vary ; here it is plain that no variation of straining weight, or of leverage, will ensue. The *bending moment* will remain unaltered.

"Again, as regards the stress on the deck, and bottom, and sides of the ship, regarded as the corresponding members of a box girder, it is plain that this stress will, in every case, be simply the *bending moment divided by the depth of the ship* ; hence it follows that the stress on each member of the girder will be *directly as the cube of the length, directly as the breadth, and inversely as the depth*. The total sectional areas of the deck, the bottom, and the sides, must be proportional to the stress ; and as the *structural weight* may be taken as proportional to their sectional areas multiplied by the ship's length, it must be regarded as proportional directly to the fourth power of the length,

* In a paper read at the Institution of Naval Architects, in 1874.

directly to the breadth, and inversely to the depth. From this follows the remarkable result that alike, whether we enlarge a ship by increasing her three dimensions throughout in the same given ratio, so as to enlarge her total displacements in the cube of that ratio, or whether we enlarge her by increasing her length alone, the ratio in which the *structural weight* should be increased is the *fourth power of the ratio in which the dimension is enlarged.* It is obvious that, in whatever degree the total dead weight of a ship's hull depends on her adaptation to sea-going strains, this conclusion tells most unfavourably on the useful displacement of a ship enlarged simply by elongation, as compared with that of one enlarged in all her dimensions alike; nor can the question of first cost be unaffected by the same condition."

Mr. Froude thus shows, that the longer ships are made, the greater will be their proportion of structural weight; he believes, however, that they could be made absolutely lighter, if built with greater depth; and has suggested that if the exigencies of the Suez Canal traffic requires ships of small midship section, the difficulty might possibly be met in a serviceable and economical manner, "by giving the ship greater depth amidships; giving her, in effect, something like the artificial girder structure adopted by the Americans, in their long river and lake vessels, the heights of freeboard fore and aft being regulated only by the necessity of keeping the ship's ends dry, while her height amidships is made sufficient to enable her to bear the bending moments safely, without excessive increase of structural weight."

We have, thus far, endeavoured to place before our readers some of the scientific principles which ought to be considered as exercising an immediate influence on the provision of strength, and distribution of material, in an iron ship; and, in conclusion, we may add, that the determining and arranging of the *scantlings* of the *midship sectional areas*, in such a manner as to give the required amount of strength, without unnecessarily increasing the weight, are very important points, and are worthy of the most careful consideration.

Were our iron merchant ships of the future built in accordance with such principles, we venture to think there would no longer exist such an anomalous state of things as we find at present; for it is a simple fact, that the *weakest ships*, with comparatively few exceptions, are now made to *carry the heaviest loads*; as the lighter built, and consequently, in most cases, weaker vessels have a greater proportion of displacement available for carrying cargo.

We would not have it inferred from what has been said, that we are advocating the building of *heavy*, and consequently unprofitable ships; but, on the contrary, we consider it highly important, that by a proper application of scientific principles, our iron ships should be built strong

enough, with the least possible amount of material : and, further, that their *load-line*, with respect to strength, should indicate their fitness to be immersed thereto, as truly as the figures on a crane state the load that may be lifted by it in safety.

We sincerely trust that the elucidation of this important subject will continue to receive the thought and labour of competent men ; and we shall always hail with pleasure every contribution to its literature. One of the latest is now before us, and consists of a pamphlet on *The Steamship ; its Form, Strength, and Propeller*, by Mr. John Evelyn Williams, Associate I.C.E., &c. In it we observe the author furnishes an approximation to the maximum bending moment, equal to $\frac{1}{3}$ of the product of the displacement by the length, and recommends 5 tons per square inch as the working modulus of strength ; and then proceeds to say that the "area of the deck stringers in square inches should be " =

$$\frac{\text{Displacement} \times \text{Length}}{32 \times \text{Depth} \times 5} = \frac{\text{Displacement} \times \text{Length}}{160 \times \text{Depth}}.$$

We regret we cannot entirely approve of this formula, seeing it is deduced in such an approximate manner with reference to the factor used in determining the bending moment ; and we are of an opinion that any attempt to regulate the scantlings by approximate rules, is open to objection. But, although we do not agree in all that Mr. Williams has set forth, yet we see much in his little work to recommend its perusal to all immediately concerned or interested in our steamships.

MERCANTILE MARINE OFFICES.



CONSIDERABLE discussion has arisen, from time to time, as to the utility of Mercantile Marine offices. With a view to put the question fairly before our readers, the following remarks have been penned.

The establishment of Mercantile Marine offices dates specifically, or rather legally, from the 14th August, 1850, the day when "The Mercantile Marine Act, 1850," received Her Gracious Majesty's assent. That Act came into operation on the 1st day of January, 1851. The 35th Section of that Act provides, "That in every seaport in the United Kingdom in which there is a Local Marine Board, such Board shall establish a shipping office or shipping offices, and may procure the requisite premises, and appoint, and from time to time remove and re-appoint, superintendents of such offices, to be called shipping masters,

with any necessary deputies, clerks, and servants, and have complete control over the same, subject to the approval and immediate direction of the Board of Trade." The same Act prescribes the duties of the officers ; and also that, with the consent of the Commissioners of Customs, the duties may be performed by Customs' officers at any Custom House. This Act was repealed, or rather extended and confirmed by "The Merchant Shipping Act, 1854." In it similar clauses were embodied, and the duties of the officials more elaborated. By Section 124 of that Act, it is provided :—

"It shall be the general business of shipping masters appointed as aforesaid,

"To afford facilities for engaging seamen by keeping registries of their names and characters ;

"To superintend and facilitate their engagement and discharge in manner hereinafter mentioned ;

"To provide means for securing the presence on board at the proper times of men who are so engaged ;

"To facilitate the making of apprenticeships to the sea service ;

"To perform such other duties relating to merchant seamen and merchant ships as are hereby, or may hereafter under the powers herein contained, be committed to them."

In the Amendment Act of 1862, the expressions or titles "shipping master," and "deputy shipping master," are abolished, and those of "superintendents of Mercantile Marine," and "deputy superintendents of Mercantile Marine" inserted in lieu thereof. The name "shipping office," also thereby became obsolete, and the present name "Mercantile Marine Office" given, by which, in the United Kingdom, they are known at present. The mere duty of engaging seamen as crews of merchant ships by getting them to sign articles of agreement, and discharging them officially from those contracts, still forms part of the business of those offices, but the duties are not restricted thereto, as when they were at first created. For instance, a savings bank for seamen has been since 1855 added ; a money order office has also been established ; the receipt of fees on ship measurement and surveys, together with the payment of surveyors under the Board of Trade ; wreck accounts, Colonial lighthouse accounts, accounts relating to "inquiries," the local management of the Royal Naval Reserve, and other details connected with the multifarious ramifications of the Board of Trade. If it were practicable to return to the old system of shipping crews and paying them off on board ship, as is argued for by some, a considerable amount of work would still remain to give these offices a *raison d'être*.

Of course the above remarks only apply to the offices which exist in Great Britain and Ireland, and they, so far as crews are concerned, apply

principally to British ships engaged in the "foreign trade," i.e., that trade which lies beyond the coasts of the United Kingdom, and the coast-line of the Continent of Europe extending from the Elbe to Brest. In foreign ports similar work is performed by the Consuls of Her Majesty at the various Consulates, and also at Custom Houses, &c., in the Colonies by Collectors of Customs and other officials; but, of course, their operations are in a measure modified by the local law which prevails at each such place. By the Merchant Shipping Act of 1873, Section 11, power is given to foreign Powers to agree with Her Majesty to extend all the privileges of the British Merchant Shipping Acts, so far as shipping and discharging crews are concerned, to those of the vessels of such States; but, so far as we have yet learned, this privilege has not yet been availed of. Outside of the British "Mercantile Marine Office" limit, there are, of course, "shipping offices" for foreign seamen both in this country and abroad, and in the principal ports of the United States similar ones to ours have been instituted. But we take leave to say that none of the statutes of foreign Powers relating to seamen have the same comprehensiveness and power for good which that of England has—if its provisions be only worked and administered in the spirit in which it was framed.

Coming now to the objections which have been raised against Mercantile Marine offices proper, we have only to meet them in the face by showing the mode in which they were introduced. For a fuller detail of it we refer to the Minutes of Evidence and Report of the Royal Commission on Unseaworthy Ships, published 1st July, 1874. At question 18,633, Mr. Farrer (who was an official at the Board of Trade at the time) stated that, previous to the first establishment officially of these offices, crimping had assumed a serious aspect at Liverpool. In order to protect themselves from the "black mail" of these harpies (the crimps) the merchants and shipowners there established a central office at that port—of course, on the voluntary principle. Mr. Farrer and Captain Brown were directed by the Board of Trade to visit Liverpool to see personally how the system worked, and they were advised by the shipowners of that port to recommend the establishment of a national system on the same model; one of the arguments used being that it would tend to abolish the nefarious crimping practices which so much prevailed.

This opinion was given with the proviso that some control of them should be retained by the local authorities, and hence arose the Local Marine Boards, which, at the present time, and since 1850, have had the surveillance of the Mercantile Marine offices at 17 of the principal ports. At question 18,634 the query was: "Has it stopped crimping?" and the reply given was: "The evidence is that at Cardiff it has done great good."

At question 13,817, put to Captain James Furnell—one of Mr. Green's old shipmasters—the query was again raised as to their utility, and the reply given was in their favour. He stated, before their establishment he used to go to Ratcliff Highway among prostitutes to get the men, and that he was often obliged to bribe the girls to let the men go. He never saw such confusion in his life. Mr. McIver of the "Cunard" Line at Liverpool also gave evidence, and only objected to them because they could not adequately overtake the immense business connected with his steamers. He preferred the principle of having an impartial witness, like a Government officer, to the contracts made between his shipmasters and their crews. A concession has been made to him, and to other owners, who may choose to pay an extra fee of having their crews shipped and discharged on board the vessels. It has been argued that this principle should be extended to all ships, and without the aid of Government in the matter. The reasons being that the intervention of the Government tends to create insubordination, by making the sailor rely upon its paternal protection against their legitimate masters; that the present system involves delay to vessels, especially to steamers; that the congregation of seamen about Mercantile Marine offices gives facilities to crimps, prostitutes, and beer-sellers to prey upon them; and that the sailor would necessarily have to go on board the ship and would then see her before he signs, were they abolished. It is also argued that were the agreements all made in duplicate duly signed by the seamen in presence of a broker's clerk (say) and attested by him, the duplicate to be deposited at a Government office on the sailing of the ship, that all purposes of registration, enforcement of contract, and so forth, could be accomplished quite as well as at present. These objections bear a certain amount of plausibility till analysed. If seamen were all of a steady, sober, upright class, this might do. But we are afraid that the depravity of the times has affected many of them so much that something like police supervision is absolutely required, even for the good of the men themselves. If the two systems were adopted contemporaneously, on the voluntary principle, wherever the Mercantile Marine offices are worked in the sense in which they were established, viz., to give facilities to the business of the maritime public, then we sincerely believe it would be preferred, and more extensively patronised by the owners and masters themselves. The charges of encouraging insubordination, detention, temptation, and the sailor's carelessness in signing without seeing the vessel, might be almost entirely removed by increased facilities at the offices themselves.

Our idea of a "model" office is that it ought to have the following characteristics :—

- a. It ought to be centrally situated for shipping, and of sufficient size.

b. If the port be extensive, branches should be established, but not distant offices.

c. It should have a staff adequate to the maximum amount of business done.

d. The chief should have a thorough knowledge of maritime laws, and the value of legal evidence.

e. Where large enough to have an out-door staff, the chief of it should have a police training of a detective character.

f. The staff should be courteous and expert, and the runners should have certain work allotted to them periodically for obvious reasons.

g. The enforcement of the 237th, 243rd, and 257th Sections of the Act of 1854, should be rigidly carried out, for the more complete suppression of desertion, crimping, and disorder.

h. Impartial justice should be meted out to all parties: owners assisted against deserters, and seamen against owners and crimps who oppress or deceive them.

The utility of these remarks will be more evident by a reference to one or two ports which we have in our mind's eye. Take, for instance, the foreign port of New York. For many years the complaints there from masters of ships regarding the actions of crimps and their lawyers, have been loud and long. The boarding-house keepers had a "ring," or "union," and, from the power derived therefrom, they actually fixed the rate of wages for seamen for a whole year. In a free country like America, this seems almost incredible, if we did not know it on the most indubitable testimony. This is the consequence of having no statute law bearing on the evils complained of, and the degeneracy of too much liberty (of a certain kind) into licence. It is to be hoped that the shipping office now formed there, and the amendment of the law, will have the desired effect of stopping such an embargo on trade, and, also, of mitigating the other evils connected with the Mercantile Marine of such a great country.

It is quite possible, at the same time, to have an institution of good, sound constitution, and laudable objects, but still with abortive and ineffective results. We cannot hide from ourselves the fact that some of our own Mercantile Marine offices have not achieved the good results they are fitted to effect. Whether that is the fault of too much parsimony in the design, or weakness in their administration, we are not prepared to say, but certain it is they would be much more conducive to the public interest, and much more popular among those who have business to do with them, than they at present are, if some improvement were made in their working. As an instance of what is meant in the fore-

going sentences, take the case of Cardiff. This place has been growing rapidly in the extent of its commerce for forty years. At the time of the introduction of the shipping-office system, in 1850, the population was about 18,000, and now it numbers more than 70,000. A continued and regular growth, in proportion, has taken place in its shipping. At that time the system of shipping crews was done by "licensed shipping agents," who had no official or legal force further than to engage seamen, and charge their fees for so doing. In 1851, a small office was attached to the Custom House for the purpose of facilitating the engagement and discharge of crews, and, generally, to carry out the purposes of the Act of 1850. In it a solitary clerk was placed, and he, with the help of the "licensed shipping agents," continued, with but little other assistance, to do all the business up till 1866. By that time the work had increased ten-fold, and the office and staff (save the mark!) were utterly inadequate for the mere official routine required, far less to keep down the evils of crimping, desertion, and numerous other infringements of the Act, which ensued. The place became a bye-word and a scandal, not only in the United Kingdom, but over all the world where British shipping traded. The Board of Trade interfered, placed a small police-staff at the office, added another wing to the premises, and strengthened the clerical staff. Since then numerous prosecutions of crimps, and other delinquents, have been carried out, and now, although the business has more than doubled since 1866, the order and regularity of the port can compare favourably with the best of the kingdom. As a proof of what is being done there, in the interest of the shipping community, to show what is required to be done in order to purify the commercial atmosphere of such a port, and as a sort of index of the evils that would inevitably arise were no such system in existence, we append the returns of convictions and prosecutions for 1875, from under Mercantile Marine laws there. At the same time, it must not be understood that we are commenting with a partial leaning to the place, nor are we disposed, even now, to give it unqualified praise; for we certainly think that much better arrangements might yet be made for the growing requirements of such a thriving and increasing port. For instance, the present office is entirely inadequate to the extent of the work done, and is most inconveniently situated.

We are glad, however, to learn that this evil is about to be removed, and that a more central site has been chosen upon which commodious offices, of the most modern plan for convenience, are to be at once constructed. But, within the limits of the port, there is a dock called the "Penarth Dock," at which a very large amount of steam tonnage is loaded, and (can it be believed?) from this place masters of ships have to drag their crews, about four miles off by road, to be discharged or shipped as the case may be. A "branch" office ought at once to be

formed there for the convenience of trade. It seems a singular oversight that it was not done ten years ago when the dock was opened, for the dock company built offices expressly for such purposes, and, doubtless, as they have been so long unoccupied, would be only too glad to rent them on the most reasonable terms. Let us hope for better things there and elsewhere for the future. A word, in conclusion, of advice to authorities may be useful. The Board of Trade has the general control of all things relating to the Mercantile Marine; the Local Marine Boards at the principal ports, exercise a certain amount of surveillance; at the rest of our home ports (about 100) collectors of Customs perform the requisite duties. Now, we would just remind these authorities that the introduction of the shipping office was for the purpose of protecting the seaman from imposition; to assist in meting out impartial justice between man and man, and for the purpose of facilitating the transaction of business generally. We are glad to perceive, of late years, that there is a growing tendency to grasp their ideas more firmly, and consequently, to develop them in the right direction. It is not many decades since a Government officer was looked upon as a sort of an ogre, something to repel and be nervous in the presence of, but, since the extension of the postal and telegraph system, the genus is getting more numerous, and, hence, more familiar to us; and, what is better, more courteous and convenient in his habits. With more convenient offices, more expert and intelligent officers, and some modifications in the details of the business, we have the firm hope that the Mercantile Marine office will develop into greater usefulness and popularity yet.

We now append a copy of the Cardiff "Abstract of Convictions and Prosecutions for the Year 1875," made to the magistrates, who, happily for the port, we are glad to learn, take a lively interest in the operations of the office.

TABLE, No. 1.

SEAMEN ENGAGED IN FOREIGN-GOING TRADE, AND THOSE WHO FAILED TO PROCEED.

Nationality.	Number Engaged.	Number who failed to proceed.	Percentage loss.
British ...	14,908	338	2·27
Foreigners ...	3,022	57	1·88
Total ...	17,925	395	2·20

TABLE, No. 2.
ANALYSIS OF NUMBERS WHO NEGLECTED TO PROCEED TO SEA.

Particulars.	Number.	Weeks imprisonment.
Arrested at Cardiff... ..	37	223
Arrested at other ports ...	18	124
Refused to proceed... ..	6	38
Reported themselves ...	5	24
 Total convictions ...	 66	 404
Excused by the Bench ...	27	—
Refusals (by owners, &c.) to prosecute	147	—
Number could not be traced...	155	—
 Total	 395	 404

TABLE, No. 3.
DESERTIONS FROM VESSELS ARRIVING AND HAVING AGREEMENTS NOT TERMINATED.

Ships.	Men.	Deserters.	Per cent. loss.
769	12,731	320	2.51

TABLE, No. 4.
ANALYSIS OF NUMBERS DESERTED.

Particulars.	Number.	Weeks imprisonment.
Arrested at Cardiff	20	127
Arrested at other ports ...	5	30
 Total convictions ...	 25	 157
Excused by the Bench ...	8	—
Refusals (by owners, &c.) to prosecute	196	—
Number could not be traced	96	—
 Total	 320	 157

TABLE, No. 5.
TOTAL CONVICTIONS.

Offences.	No.	Weeks imprisoned.	Fines.	Act.
Neglecting to proceed at sailing ...	66	404	—	1854, Sec. 248
Neglecting to join in port ...	8	Sent on board	—	do.
Desertion at Cardiff ...	24	151	—	do.
Do. at other ports	1	6	—	do.
Refusing duty at Cardiff ...	2	8	—	do.
Do. at other ports	1	6	—	do.
Absent without leave ...	2	Sent on board	—	do.
Master not having agreement with crew }	8	2	£3 10 0 and costs	do. 157
Wages claim, arising out of above }	1	—	£1 10 0 and costs	do. 188
Seamen using false certificates of discharge }	2	8	£4 0 0 and costs	do. 176
Attempting to persuade seamen to desert ...	2	8	—	do. 257
Persuading seamen to desert ... }	1	8	£10 0 0 and costs	do. do.
Harbouring deserters...	1	4	£5 0 0 and costs	do. do.
Assaults on Mercantile Marine officers }	4	16	£1 0 0 and costs	Common Law
Threatening Mercantile Marine officers }	1	—	—	To find surety £20
Total ...	114	621	£25 0 0 and costs	—

EMIGRATION TO SOUTH AMERICA.—No. IV.

B R A Z I L.



THE Empire of Brazil is the predominant power of South America, holding the same position upon the southern continent as the United States upon the northern, its form of Government, although nominally an Empire, is, in fact, a constitutional monarchy, similar to the British.

In geographical extent it almost equals the United States, its superficial area being calculated at 1,697,919,072 square acres; its territory commences at the Oyapok river, in latitude 2° north, which divides it from French Guayana, and ends at the river Chuy, upon the borders of Uruguay in the 35° of south latitude, giving it, owing to the formation of the land, an Atlantic coast line of nearly 3,000 miles. Its extreme breadth, from Cape S. Roque, in longitude $35^{\circ} 15' W.$, to the borders of Peru and Colombia, in $71^{\circ} W.$ longitude, is upwards of 2,500 miles.

It is bounded on the north by the Atlantic Ocean, French and British Guayanas, Demerara, Berbice, Venezuela, and Colombia; on the west, by the Republics of Peru, Bolivia, Paraguay, Equador, and Argentine; on the south, by Uruguay; and on the east, by the Atlantic Ocean; and it contains about 10,000,000 inhabitants, the greater part of whom are coloured; ethnologically, the upper classes are of the Portuguese race, and the lower of the African.

No country in the world possesses greater natural capabilities for internal water communication; the courses of its rivers resemble those of the northern continent in a remarkable degree; like the St. Lawrence, the Amazon runs along its northern boundaries, and is navigable for craft of different sizes, from the passenger steamer to the Indian canoe, from its *embouchure* at Pará, to the Cordilleras of the Andes, in Peru, a distance, following the windings of the river, of 2,784 miles, receiving tributaries along its whole course, from the north and from the south, opening up communication with its interior provinces, and the adjacent States. Few rivers can boast of such tributaries as the Tocawtines, the Xingu, the Tapajos, and the Madera. The Tocawtines takes its rise in the very heart of the continent, close to the sources of the Upper Parana, and, flowing north, falls into the Amazon near Pará. In like manner, the Xingu and Tapajos have their sources in the south, but further west than the Tocawtines, and fall into the Amazon higher up. The great Madera, which might almost claim to be the real source of the Amazon, rises in Bolivia, and, uniting with the main stream flowing from Peru, complete the river communication betwixt the Empire and the two Republics. The chief northern tributary of the Amazon is the river

Negro ; it rises in Colombia, and flowing through a portion of Venezuela, falls into the Amazon nearly opposite to the Madera, but somewhat further west. Humboldt is said to have descended the Negro from the Orinoco, but did not reach the Amazon.

At the southern extremity of the Empire is the river Plate ; like the Mississippi, in North America, all its tributaries, the Parana, Uruguay, and Paraguay, flow from the north ; they all have their rise in Brazilian territory, and it is only natural to suppose that the Brazilians should desire once more to possess themselves of their *embouchure*, the left bank of which in former times belonged to them. No rivers in the world, but the Mississippi and its tributaries, can compare with the Parana, Uruguay, and Paraguay, and their outlet—the River Plate.

Although the fertility of the soil in Brazil has been much exaggerated by travellers, and wilfully misrepresented by emigrant contractors, there can be no question regarding its wonderful powers of production ; but it should be borne in mind that so small a portion of its territory extends beyond the tropics, that, viewed as a whole, Brazil must be regarded as an essentially tropical country, capable only of rearing tropical products ; sugar, coffee, cotton, tobacco, are its staple and natural productions. Oranges, pineapples, and all other tropical fruits and vegetables, are produced in abundance, and silver and precious stones exist in its different provinces ; but when these inducements are crudely laid before intending emigrants without further explanation, there is a *suppressio veri* amounting to a lie. A great, the greater part, indeed, of the Empire is covered by dense and impenetrable forests ; in some parts are inaccessible mountains, the fertile valleys which lie betwixt them are distant from the *foci* of civilisation and unconnected by roads ; the very fertility of the soil has its drawbacks, for ants abound in myriads, destroying crops and even trees in their raids. The precious stones and metals lie hidden in the earth, not to be extracted by the poor man, or any man without capital, and a great deal of it ; for these ends, capital and labour must combine, being absolutely necessary to each other, but capital must accumulate before labour can be obtained, and it has not yet sufficiently accumulated in Brazil to obtain the required amount of labour.

Still, Brazil is, and deserves to be, a highly prosperous State ; a good Government, mild laws, an industrious and peaceable population, an excellent climate for its indigenous inhabitants, a fertile soil, enlightened statesmen, and, as a rule, patriotic agents ; the arts and sciences are all encouraged, and trade fostered. The Custom duties are relatively large, but not positively so when it is borne in mind that in all very extended and thinly-populated countries the revenue must be chiefly collected at the Custom Houses. The annual exports of the Empire amount in value to £17,000,000 sterling, and its imports to about £16,000,000, of which

£8,800,000 come from Great Britain. The amount of foreign tonnage visiting the different ports of the Empire averages 1,500,000 tons. The public debt amounts to about £67,000,000 sterling, the interest upon which has been always honourably met, and there is no reason to doubt that it will continue to be so, the character of the Government and the magnificent resources at its command being considered. As I am entirely opposed to the emigration of British subjects to Brazil, it is unnecessary to continue statistics, however brilliant, of which I should recommend them not to avail themselves ; but it is only due to the untiring and loyal efforts of the Brazilian Government to obtain European immigrants, to give my reasons why.

I have observed in a former paper that an intending emigrant should be guided in his choice by similarity of "climate, race, and laws," and Brazil offers neither of these conditions to the European emigrant, and, indeed, so invincible is the first, so fraught with disease, death, and desolation, that it should be held as an all-sufficient deterrent, without reference to any other.

It is natural, right, and praiseworthy, that the Brazilians should endeavour to people their magnificent country with the finest races that can be procured ; but it is hard to kick against the pricks, and still more so to oppose oneself to nature. The whole secret of their ill-success has been, not so much difference of race, laws, or customs, as the physical impossibility of peopling a tropical country with immigrants from the temperate zones. The experiment has now been going on for half a century, always with the same fatal results. The divergence of laws, habit, customs, language, religion, the existence of slavery and yellow fever, are all grave objections to European immigration, but are only aggravations of the one grave radical fact—that Nature will not have it.

Fifty years ago attempts were made to colonize (such was the term, for the Brazilians then, as now, appear to confuse colonization with immigration) various parts of Brazil with Germans and Irishmen. The results were in all cases most disastrous ; contracts were granted to speculators, who were to receive so much a-head for their victims. No preparation was made for them, no regard was paid to climate or locality, and they were treated with utter neglect and indifference. The streets were soon filled by these wretched paupers, barely covered with rags, but plentifully covered with sores ; they died by hundreds in the streets and roads ; some were recruited as soldiers, and others were sent to the virgin forests, where they felled timber, burnt it into charcoal, and eked out a wretched existence by selling it in the towns, until malaria had shaken them, by periodical attacks of intermittent fever, into their graves.

Those sacrifices probably caused the statesmen of the Empire to take

the question of immigration into their serious consideration, and the approach of the inevitable emancipation of the slaves added to the importance of the subject. The Brazilians were never unkind masters to their slaves, but they shared with the rest of the world the prejudices against the negro race. I believe these prejudices to be entirely unfounded, and to have been particularly unfortunate to a nation, more than one-half of whose inhabitants were negroes. Of all the races of the whole earth, there is none for a moment comparable with the negro as a tropical labourer, whether we consider his colour, his fine physical development, his docility and subordination, his absence from any marked vices, his industry, his deep religious sentiments, or his grateful appreciation of kindness. It is objected to him that he is black, idle, ignorant, dirty, incapable of improvement, and much other puerile trash. I reply that his being black is an advantage, a blessing, and an obvious necessity for a tropical labourer. I deny that he is idle; on the contrary, as compared with men of any other race, he is pre-eminently industrious in the tropics; that he is ignorant is the fault of those who have kept him so, and he only shares ignorance with the agricultural labourer of all countries. He is said to be incapable of culture and refinement, but that remains to be proved when he has fairly embarked in the competition of life, upon equal terms with other races, and has had time allowed for the development of his intellectual capacity. I myself have met with many highly-educated and accomplished negroes, and I have no reason to suppose that they possessed any exceptional natural qualities over the rest of their race.

It is the existence of this prejudice which has caused Brazil to enter upon a wrong course, and instead of profiting by the unexampled privilege which Nature has bestowed upon her, of five or six millions of the most efficient labourers in the world, who are alone capable of developing the riches of her great tropical Empire, she has sought to replace them by races who are physically incapable of doing so. Instead of encouraging the breed of her indigenous stock, she would at a vast expense import a foreign one, altogether inferior for her purposes. As I have before observed, there is no tropical country in the world where the labourers are not of one or other of the coloured races, or the white other than the dominant one; and as this appears to be the law of Nature, until the former are sufficiently educated to produce men capable of filling the higher positions also, Brazil would do well to confine her energies to the encouragement of Europeans learned in the arts and sciences, together with the cleverest of the artizan class; and of all Europeans she should prefer the Portuguese. But, unfortunately, the Brazilians also entertain a prejudice against the Portuguese; I need not say a most senseless, unmeaning, and altogether undeserved prejudice, one entirely detri-

mental to the prosperity of the Empire, and which, should it unfortunately continue, will in time deprive it of the very best white colonists that Brazil can possess, and who, even under all the disadvantages of climate, difference of laws, language, and religion, have been highly appreciated in our own colony of Demerara.

The principle adopted by the Government to attract immigrants, has been extremely impolitic, its motive has been a praiseworthy patriotism, carried out upon its part with rectitude and liberality, but its machinery of granting contracts to speculators was a fatal error.

It is impossible to exaggerate the amount of wretchedness, disease, and death, which has resulted from these contracts; to compare them with other magnificent crimes, the slave trade, the frauds at New York, dynamite conspiracy, would be only to classify them as they deserve, the same greed of gain, the same heartless indifference to the sufferings inflicted, and the same deceptions practised in the origin and execution of the plots.

Brazil has achieved too honourable a position in the estimation of the world, to suppose for one moment that these contracts are not granted with absolute good faith upon the part of the Government, which indeed has everything to gain by their success, and nothing but heartburning and disappointment by their failure; but experience shows that at the outset it has been made the dupe, and at the end the victim of unscrupulous and heartless speculators. Still, in adopting the principle of paying these contractors so much a-head for each immigrant landed, it is astonishing that it should have escaped its statesmen, that such contracts were susceptible of the most outrageous abuses. It is unnecessary to say, that in all the contracts, the chief, if not the sole object of the Government, was to obtain agricultural labourers, and it was this condition that the contractors engaged to fulfil; but it is notorious that the streets of London and other great cities were scoured to make up numbers, without the slightest regard to physical or mental capacity, or the previous occupations of the emigrants, every class of unfortunates, from the bankrupt tradesman to the debilitated pauper, was recruited under lying pretences, and shipped off, with, or without, their wives and families, to die of want and yellow fever, the young women driven by despair to fill the brothels, and the remnants to be returned to Europe, through the charity of their fellow countrymen, for it may be imagined that such immigrants could, with few exceptions, find employment; and the first heartrending results of this nefarious system did not deter these vampires, for it is well known that at the very time the British residents in Rio de Janeiro were raising subscriptions to send the survivors of these cruel deceptions back to England, these same men continued to issue their lying panegyrics of the country.

Very much has been written upon this subject, and upon the failure of the Crown colonies in Brazil, to fulfil the aim of the Government to people the country with agricultural labourers, but in point of fact, however exhaustive the arguments against them may be, all appear to me to combat details, losing sight of the fact, that there exist but two radical bases, upon which emigration can be successfully carried out, namely, the natural laws, and the spontaneous action of the emigrant; and as hitherto all attempts have been made in opposition to these principles, the ill-success, the disappointments, and the fatal issues, are merely the inevitable consequences of a departure from fixed and unchangeable principles. If the laws of Nature are ignored, it requires no prophet to predict the result, and if men are purchased under contract instead of being obtained by the real attractions of the country, slave trade is revived in another form. The Africans were obtained by force, the Europeans by persuasion and fraud, a distinction between rape and seduction, and no one profits by it but the contractor; the Government who confided in him is outraged, the planter is disappointed, the emigrant is deceived, transported, beggared or dies, and the contractor pockets his capitation fee.

The Brazilian Government should shake off these pests of society, and, as I have said, confine its European efforts to Portuguese artisans, and to the intellectual classes of Europe, and I may add of North America; for its labour, it has within itself a mine, in the number of the negro race, nor would its Indians prove intractable, for it must know, and none better, what the Jesuits did with them in *Missiones*, and why should not a great country like Brazil follow their example?

If it needs labourers from abroad, let it seek them in Africa, or in China, the latter contains a race destined to make its mark upon the world, it has already done so, but it will extend to lands hitherto untrod by it; it cannot be objected to the Chinese that they are either black, idle, or unintellectual; they have not the endurance and physical force of the negro, but they can support work in a tropical climate, and are docile like him, admirable craftsmen, sober, economical and contented, they make excellent citizens in the United States, and give great satisfaction in our colonies.

With these sources of labour, why should Brazil waste its wealth in impossible attempts to procure European immigrants, attempts which have ever resulted in painful fiascos. From the year 1850 to 1871 inclusive, the Government has entered into 46 contracts with speculators, for the importation of Europeans, eight of these, signed during the years 1863 to 1867, ended in *nubibus*, no attempt having been made to carry them into effect; the 38 others were for the introduction of 263,670 immigrants into various provinces of the Empire, amongst others to

Pará, Pernambuco, Paraíba, and Alagoas, where yellow fever reigns triumphant, and the climate otherwise altogether unfit for Europeans. Of these 263,670 immigrants, only 17,750 ever reached Brazil, I may say fortunately, for it will not be an exaggerated estimate in such a climate to suppose that one-half of them died, became confirmed invalids, or were sent back to their own countries.

The only justification for having so long persisted in these abortive efforts, is the partial success of the German immigration to the Province of Rio Grande de Sul, which, bordering upon the Platine States, and washed by the river Uruguay, offers inducements of climate, which do not exist in any other Brazilian Province; but even here, what has been the result? In fifty years, 18,000 Germans are said to have been imported, and the highest calculation of their present numbers, including of course their offspring born in Brazil, is 50,000. The average number imported annually for the whole period being 860.

I have said sufficient to show, that with very sincere admiration of Brazil, its Government and people, with the conviction that the Empire is destined to become a great, enlightened, and powerful nation, I nevertheless consider it to be totally unsuited for British, or other European emigration; that I believe its efforts to establish it to be impolitic, and their success to be impossible; and that it contains within itself the foundations of its own increase and prosperity in the African race, so ignorantly, and unjustly despised.

That foreign emigration may be encouraged to become spontaneous, every effort should be made to reduce the size of the outrageously overgrown estates, by the imposition of a land tax upon their uncultivated portions, and by the passing of a law, similar to our Encumbered Estates' Act; facilities should be afforded for the purchase of small freeholds, as an inducement to coloured emigrants, and freemen, and to the slaves to remain and not to "squat" after their emancipation; schools with compulsory education should be established, marriage should be encouraged, indeed it was the immediate result of emancipation in our colonies and elsewhere to discourage concubinage, and thereby to produce a marked increase in the number of births. These measures might, and probably would lead to a spontaneous immigration of negroes, Chinese and coolies, and perhaps Indians from other South American States, but as regards whites, no mortal effort will ever succeed in reversing so palpable a law of nature, as that the tropics are for the blacks, and the blacks for the tropics. It would be as easy to people Siberia with negroes, as Brazil with whites.

PROPHET AND DISCIPLE.

NO sooner does a great, good, large-hearted, pure-minded man come to the front, proclaiming from the housetops, preaching to the multitude, and calling the Most High to witness that he, the said good man, is about to throw aside, or has thrown aside, splendid opportunities of accumulating wealth in earthly pursuits, and that having rendered unto every man his due to the utmost farthing, he now voluntarily offers up himself as a sacrifice, having first purged his spirit from all envy, hatred, malice, and uncharitableness, in order to devote himself body and soul to the raising up of some suffering down-trodden section of humanity,—no sooner does such a man publicly assert his intention to make such a sacrifice than thousands of hearts beat responsive, and numerous other men and women with hearts as great, sentiments as noble, ideas as just, and intentions as honest, flock around that great and good man, hail him as their prophet, and enrol themselves as his disciples. When a prophet of to-day, like a prophet of old, pens a message, dedicates the volume in which it is written to the greatest personage in the land, calls upon the Most High for spiritual help, and upon the people for earthly aid, promising them in return “the blessings of those ready to perish” and a share of “those richer blessings promised by the Great Father of us all,” the people marvel, and the pure amongst them accept the message.

Nothing speaks so forcibly for the real innate goodness of the human race as this spontaneous negation of self when an appeal is made by such a prophet on behalf of an oppressed section of the community, and nothing shows more forcibly than this negation of self, how deep is the root taken by a message fervently and prayerfully delivered and couched in the language and style of the sacred Scriptures. Again, those who assert that goodness is rare among peoples, are put to shame, for is not the abundance of that goodness manifested even to overflowing by the vast numbers who came forward to aid the prophet and become his disciples, or do his bidding in various ways.

The heart of every true Briton swells at any reference to the name of liberty, and beats with emotion when called upon to assist in releasing any suffering unit of humanity from the oppressor's heel, and it is not, therefore, surprising that the homes of Britons all over the world should have been set in commotion by soul-stirring narratives of oppressions, sacrifices, and sufferings endured by British mercantile sailors and their wives and families—oppressions, sacrifices, and sufferings the more terrible, because endured with fortitude amounting to unconsciousness, and because the victims were honest toilers, whose homes were made deso-

late, whose wives were made widows and outcasts, and their children orphans, in order that bold bad men might sit at home in splendour, when not employed in their counting-houses, gloating over unhallowed heaps of untold gold.

Thus it came to pass, that when a great good man, such as we have described, whose dealings with his neighbour have been so pure and blameless as to entitle him to set himself up as a judge of mankind, proclaimed to the English speaking peoples that he had sacrificed himself for the sake of that noble and brave but down-trodden mass of humanity, "who go down to the sea in ships and occupy their business in the great waters," popular sympathy at once was accorded to him, and help of all kinds ungrudgingly proffered to him. The case could not have been otherwise amongst Britons, and the British workman, the British peer, the banker, the merchant, the small trader, the shipbuilder, and the good among shipowners all united to take up the parable of the prophet, and form an enthusiastic body of admiring and sympathising disciples, for they believed him in all things and knew him to be, even as they themselves were, free from guile and free from envy, malice and all uncharitableness. But this was not all; for from the tap-room and the public-house bar, from the church, chapel, and meeting-house, from the work-room of the seamstress, and the work-shop of the "horny hand," from the fore-castle of the ship, and the depth of the mine, from the gilded saloon of the aristocracy, and the squalid cottage of the farm labourer were poured forth blessings, prayers and ready cash, and showered on the heads or reverently placed at the feet of the prophet and his disciples.

The enemy to be chained by this formidable array in order to rescue poor Mercantile Jack was not disease or ignorance, was not the crimp or the unclean female, was not the long shore harpy, but an enemy far more deeply dyed in blood and sin, and this enemy was all the more deadly and dangerous because he affected not to know of his own villainies, and because he was double-headed. This enemy was the shipowner of "murderous tendencies." He was a sort of ubiquitous villain after the stamp of the arch traitor, Guido Fawkes, but worse, and like that monster of inhumanity he was to be found "both inside and outside the House of Commons." Crime was in his heart, blood was in his hands, the agonies of sailors furnished him with diversion, and his face bore a wicked but delusive smile, and his brow was deceptively calm. He might ride in gilded chariots, he might associate with the high and mighty, his sons and daughters might be given in marriage in high places, he might patronise art, he might build churches or tabernacles, he might found schools, he might go to sea in yachts, he might institute life-boats, he might give a tenth of his substance to the

poor, or send anonymous contributions to the Chancellor of the Exchequer, he might do all this, but alas! alas! he was a whited sepulchre, and all his acts of so-called benevolence and beneficence, and all his luxury were but the whitewash to cover corruption within. The prophet himself being, as he has said, good and charitable, knew that these enemies of Mercantile Jack were wolves in sheep's clothing, and that their actions, where they appeared to be good, were merely put on as a cloak to their nefarious practices, and he also knew that there were accounts to be balanced in which the curses of the widow and the orphan, the blood of the breadwinner, and the desolation of his hearth, stood as an item on the other side against the entry of hundreds of thousands of thousands of pieces of gold, the result of unhallowed gains received as the price of ships and sailors wilfully and deliberately sent to the bottom of the deep blue waters in coffin ships. These bold bad men were the masked villains, but besides these masked villains there were other villains unmasked, of even a deeper dye, conspirators actually paid out of taxes wrung from the sweat of the brow, and the labour of the "horny hand." These unmasked villains had become completely corrupted by the masked villains, and had devoted their energies to the service of the ship-knackering fraternity, the leading unmasked villain being, in the words of the prophet, "the biggest rascal that walked upon two legs." Such was the unholy brotherhood, the wicked alliance that the prophet undertook to crush. He entered the crusade not against a system, but against persons whom he marked out, and those persons once crushed, imprisoned, or otherwise disposed of, poor Mercantile Jack would be rescued, and his home would be happy ever after.

It will be seen that the point of view, and the stand taken by the prophet and his disciples, are that he and his followers, like crusaders of old, are alone to be credited with honesty of purpose and singleness of heart, whatever they may say, and whatever they may do; that they are the sole repository of right feeling, good sense, and justice, and that those persons who notoriously question their utterances are the men to be attacked and crushed. It may be thought those bad men are in a dire condition, considering that the prophet by force of his own influence and prophetic zeal has brought a truant House of Commons to bend its stubborn neck to his dictates. No wonder that great latitude, both in speech and action, is allowed to such a man and his disciples. Who dare question one who wields so mighty a power as the people's sympathy?

Whatever measure of good intention and honesty of motive is to be given to the prophet, the same measure must be given to the disciple. And here a little episode connected with an ardent follower of the

prophet may be narrated. A disciple who lives at Liverpool has come to incontinent grief in the prophet's service, and now the prophet repudiates him. It is a warning for disciples not to put too much trust in their prophets, who after all are but human. The Liverpool disciple has for a long time been the openly accredited agent of his leader, and by his action in other cases has gained for the leader great praises and blessings; but in the last case he has copied the leader a little too closely and has fallen to earth with dashed hopes. In zeal and in all singleness of heart the Liverpool disciple stands on a level with the prophet, and in pure zeal and singleness of heart he attacked a seaworthy ship. This attack being made in the interest of Mercantile Jack by a disciple of the prophet, is surrounded necessarily with the nimbus of good intention. The Liverpool disciple having the prophet before his eyes knew that he had made similar attacks, and had been applauded to the skies and had ridden away triumphantly on his gallant steed of good intention. We do not wish to enlarge upon this subject, as we know that in the present temper of the public mind any kind of attacks may be made by persons alleging themselves to be good, pure, and single-minded men who have meted out justice in all their dealings with their fellow-creatures, upon the personal characters of other men, shipowners and public officers for instance, and if unwarranted assertions are made and unmerited, or serious injury inflicted on the character of those men, it is not noticed, for is it not all done out of pure kindness with an honest intent, and in the interest of the mercantile sailor? It is perhaps a little too bad that the disciple to whom we refer, having given to the prophet the sincerest form of flattery, viz., imitation, should now be repudiated by the great leader, for certainly the prophet and disciple ought to be *en rapport* to such an extent that they do not disagree in public.

ATLANTIC STEAM FERRIES.—No. VI.

THE DOMINION LINE.

THE full title of this Company is "The Mississippi and Dominion Steamship Company, Limited," and it trades between the ports of Liverpool and Quebec, Boston, and New Orleans. It is a fact worth remarking, that although this Company was only started in 1870, it has two juniors in the American steam trade, namely, the White Star and the Philadelphia Lines. The principal trade of this Company, as its ordinary name implies, is with the Dominion of Canada, and it is one of the outgrowths

of the great expansion of Canadian commerce which has followed confederation. In fact, among the principal shareholders of the line are some of the leading merchants and traders of Montreal and Quebec. It had its origin also, not a little to that spirit of competition which always seizes a commercial community when it sees the prosperity of a large steamship company or railway, and no doubt there was some idea of reducing freights by the introduction of the new line, and whether this has been so or not the uninterrupted progress of this, as well as the other lines, seems to show that the steamers were wanted for the trade.

The Dominion Steamship Company is founded upon the old sailing ship connection of Messrs. Flinn, Main & Montgomery, of Liverpool, now the managing directors of the new line. This firm had for many years a large trade with the port of New Orleans, in the transaction of which the two senior partners, Mr. Flinn and Mr. Main, were practically engaged as shipmasters. The New Orleans associations of the house have been maintained under the new company, as its name, "Mississippi," &c., indicates. The experience gained by the old firm has been most valuable, and enables the Dominion Company to boast of being the only steamship company trading directly between Liverpool and New Orleans. It is not likely that for years to come anything will be done to realise the grand project for cutting a canal to enable ships to avoid the dangerous mouths of the Mississippi river; but if that great work should ever be accomplished, the Mississippi and Dominion Company will reap a great advantage from the extension of trade which would at once take place. In the meantime a good deal is being done to improve the navigation, while the western farmers are becoming fully alive to the importance to them of utilising the great water ways of the Missouri and the Mississippi, in getting their produce out to the sea. If grain carrying vessels of sufficient capacity were able to navigate the Mississippi in safety, and if the grain could be brought down as it has been, from Iowa to New Orleans for shipment, it is calculated that there would be a considerable saving in the price at which it could be sold in Liverpool, coming either *via* the railways and New York, or from Chicago by way of the lakes and Montreal. However, this is a dream of the future, but the measures for realising it are sure to be taken up when the United States recover from the condition of financial torpor which has fallen upon them since the great panic of 1873.

It was to New Orleans in the first place that the operations of the new company were confined. In 1870, Messrs. Flinn, Main and Montgomery consulted with several of their Liverpool friends, and the result was the formation of the Liverpool and Mississippi Steamship Company. This was not either a joint stock organisation nor a limited liability company, but simply an organisation of partners so to speak for developing the

operations of the old firm. They were formed into a co-partnership under the Shipping Act, the old partners Messrs. Flinn, Main, and Montgomery acting as managing owners and ship's husband. The time chosen for commencing operations was extremely favourable, for at that period it was possible to buy iron ships at a reasonable price; neither iron nor wages having risen to those famine prices which have produced a regular "scare" among all persons connected with the iron trade industries, and which is thought to be, by old ladies over their tea, the beginning of the end of England's commercial supremacy. The Company were able from the circumstances named to enter into some very favourable contracts on terms which have contributed not a little to their success. They were also helped in starting by the economy of fuel which had just been effected by the establishment of the compound-engine principle.

Their first steamship, the *St. Louis*, was launched from the shipbuilding yard of Messrs. Clover, Clayton and Company, the well-known shipbuilders of Birkenhead, and sailed upon its first voyage to New Orleans, on the 6th October following. The *St. Louis* was a steamer of moderate tonnage, being 1,827 tons and 200 nominal horse-power, but it is to be remembered that the peculiar nature of the New Orleans trade demands vessels of a light construction. The fact of New Orleans being a bar harbour has to be allowed for; but the constructor of the *St. Louis* allowed for a large amount of cargo-carrying power with a light draught and considerable speed. One peculiar feature of the new vessel was the moderate amount of fuel consumed, the same not exceeding 25 tons a-day. Following closely upon the *St. Louis*, were the *Memphis*, the *Mississippi*, the *Vicksburg*, and the *Texas*, which were all built by Messrs. Archibald McMillan & Son, of Dumbarton, under circumstances of the contract, which were exceedingly favourable to the Company. These vessels averaged above 2,400 tons, and 300 horse-power. Soon afterwards, the Company acquired another vessel, the *Missouri*, which was obtained by purchase.

This brings the history of the Company to the close of its first stage. Having barely passed its second year of age, the managing directors began to look out for a fresh field of operations, and were attracted by the opportunities of trading afforded by Canada, which was then passing through one of its most prosperous years. It was argued that the trade of the Dominion was growing at a pace which rendered it impossible for the old companies to cope with it. The matter seems to have been forced upon the notice of this Company by the representations of several influential merchants of Montreal and Quebec. The consequence was, that the senior managing partner proceeded to Canada, and obtained such an amount of support as to encourage the partnership in the next

important step which was taken, namely, the merging of the Liverpool and Mississippi Steamship Company in the present Mississippi and Dominion Steamship Company, Limited. This alteration was effected on the 29th August, 1872. The capital of the company was fixed at £500,000, in shares of £20 each, and was mostly subscribed in Liverpool and Montreal. In the prospectus issued at the time, the following account of what had been done was given :—" Having in the spring of the present year been urged by influential Canadian friends to extend the operations of the Company to the Quebec and Montreal trade, it was determined to send the steamers there under the name of the Dominion Line. The senior managing owner proceeded to Canada, and found there among many of the foremost men a strong desire that the Dominion Line should become a permanent institution; a commodious wharf at Montreal was assigned to the Company's steamers by the Harbour Commissioners; the privilege of discharging cargo immediately on arrival was granted by the Customs' authorities, and a private subscription list was opened and a large sum subscribed, with the object of adding more steamers to the Company's fleet on the understanding that the constitution of the Company would be altered from a private ownership to a public limited company. Consequently, there has been formed "The Mississippi and Dominion Steamship Company, Limited," which was registered on the 29th August, 1872.

The proposed capital was subscribed without delay, the owners of the old line being paid in fully paid-up shares according to a valuation of the steamers which were then running. That the enterprise of the shareholders has been justified, seems to be proved by the fact that there are no shares in the market for sale, and that dividends have touched 10 per cent. As the operations of the Company are extended, shares will be issued when it is found necessary to add other vessels to the fleet. The Canadian shareholders have one representative on the board, while the Company have secured, as its representatives, Messrs. Torrance and Company, one of the most respected business firms in Montreal.

The first act of the new company was to give out contracts for building two new vessels, the *Dominion* and the *Ontario*, which show their Canadian connections, as the other names remind the reader of the trade with the Southern States. These two vessels, which have accommodation for 50 cabin and 800 steerage passengers, are built upon the most improved principle and are fitted with steam-steering apparatus, and every recent mechanical contrivance for insuring the safe navigation of ships. They are of 3,118 tons each and 400 nominal horse-power, and their specifications were considerably in excess of the requirement of either Lloyd's or the Liverpool Registry for the highest class of vessels. The following is a list of the fleet of the Mississippi and Dominion Company :—

	Tons gross.		Tons net reg.		Horse-power.
<i>Dominion</i> ...	3,176	...	2,031	...	400
<i>Ontario</i> ...	3,176	...	2,031	...	400
<i>Memphis</i> ...	2,485	...	1,595	...	300
<i>Missouri</i> ...	1,989	...	1,209	...	160
<i>Texas</i> ...	2,371	...	1,508	...	300
<i>Mississippi</i> ...	2,240	...	1,370	...	250

With this fleet, trade is kept up between Liverpool and New Orleans and Quebec in the summer, and between Liverpool and New Orleans and Boston in the winter. The steamers which run to New Orleans make calls at Bordeaux, Corunna, Lisbon, and Havana, and have carried a large number of emigrants from the Continent to the Southern States. The Company has pursued its way very quietly, and it will be acknowledged has done a deal of work in a comparatively short time. The Canadian part of its business is sure to extend upon the revival of Canadian activity, signs of which are becoming more and more encouraging and frequent.

SUPERANNUATED VIGILANCE.

IN the days when emigration was carried on in wooden sailing ships, and those none of the best, before William Inman, the great benefactor of our surplus toiling population, had inaugurated steam passages for emigrants; in those days antiquated, but still to many of us as yesterday, the system of emigration officers and inspection of emigrant ships was by law established. Many of the provisions made by the Acts of Parliament are now so ill-adapted to present necessities that the system stands out almost as a weedy excrescence from amongst the more modern, more reasonable, and more effective systems surrounding it which are adapted to the requirements of the age.

Formerly the emigrant was often a helpless person—ignorant, inexperienced in the ways of the world, and not assisted by any organisation, charitable or Governmental, either here or in the land of his future home. Thus he was at the mercy of all sorts of impostors, who misled and deluded him with the object of getting from him what little money he might have. In addition to this, the emigrant was regarded by many people as one who could not do well at home, and was of little or no use anywhere, and in consequence of this opinion, it came to be considered that anything was good enough for such a person. This prejudicial feeling

no doubt influenced the few shipowners who then undertook to convey emigrants to any of our colonies or elsewhere, and it is not surprising therefore that the ship on board of which he was placed was ill-ventilated, unhealthy, badly provided both in accommodation and food, and was propelled by sail power only. But since the value of an "immigrant" has become known in various parts of the world, and of "emigration" in our own country, *nous avons changé tout cela*, for now the emigrant is a passenger cared for by organisations both in his old and in his new country, provided with good accommodation, good food and medical attendance if required, and our "Atlantic Steam Ferries" and the finest sailing ships in the world, compete to convey the emigrant to different parts of the globe. Owing to the advantages of commercial enterprise and competition, a passenger in these days is enabled to take a first, second, or third-class passage, and an emigrant often can afford to go • second-class, thereby obtaining better accommodation, food, and attention than a cabin passenger obtained some years ago.

It is no exaggeration to say that the British passenger steamship is at the present time the fastest, and, above all, the safest of ships afloat, and the best of all such ships are now at the service of the second and third-class passengers; but notwithstanding this, and notwithstanding the facts that the agents of the various colonies in this country superintend the loading and despatch of passenger ships, and that those carrying passengers to the United States are inspected on arrival, those ships are still subject here to the laws passed years ago, and intended to apply to the state of things existing in the time we have ventured to call antiquated.

It is curious to note that while an army of theorists ashore are doing their best to make the fittings and equipments of ships so complicated that the ships themselves will be rendered difficult to manage, and as dangerous as possible, and while the agitator is denouncing the "murderous tendencies" of "ship-knackers," and the Legislature is industriously occupied in weaving the warp and woof of ingenious theory and abstract opinion into a measure for practical application, the shipowner himself fails to receive any consideration whatever in regard to his interests. He must indeed be, like Ulysses the shipowner of old, a "much enduring man," and he can only wait and hope for better times. In respect of the subject of our present remarks, he is no more able to get the burden of antiquated legislation removed from his shoulders than he is to obtain relief from the disastrous effects of recent agitation.

The present practice of emigration owes its success, we believe, to the system of inspection on arrival, and to the simple arrangement which came into force whereby payment was made for the passage of emigrants only, who arrived at their destination safe and well. A system of most

complete and careful inspection and of licensing passage brokers was also established here, and the emigration officers undoubtedly did their work well; but the real cause of the improvement was the special arrangement as to passage money. One of the essentials to the well-being of passengers is of course an adequate supply of good provisions for the voyage, and the framers of the Act, actuated by the best motives, drew up a table showing the average number of days that a voyage was supposed to occupy at that period. But since that was done, two things have come to pass, viz., voyages have been considerably shortened, and fresh and preserved meat have become the staple food in passenger steamers. Now, although the length of voyages has decreased, and although fresh meat is carried and soft bread can be, and is regularly made, the passenger ship is still required under the Act to carry barrels of salt junk and salt pork as of yore, and the Board of Trade maintains inspectors to see that this is done at the shipowner's expense, though it is merely taken on board to be carried a voyage and sent ashore and sold at the end of it. The passengers never touch it as they have ample fresh provisions, and the salt junk and pork thus carried is a treble evil; (1) it has to be purchased for no useful purpose; (2) it has to be inspected for no useful purpose; and (3) it increases the cost of the emigrant's passage, not only because of the money wasted in the purchase of unnecessary provisions, but because it occupies space that would otherwise be occupied by freight-earning cargo.

We do not care to put before our readers the case in its worst aspect, and do not therefore wish to parade in public the many other gross absurdities covered by the present system, of work done thrice over, of the maintenance of a useless staff, &c., we merely desire in calling attention to the state of things, to express a hope that if we are to have legislation, the shipowners will press for relief from a system of superannuated vigilance. Foreign competition is very severe, and the price of provisions is sufficiently high, so that it seems a real hardship on the British shipowner that he should have to provision a densely populated ship for 200 days for a voyage occupying 60 days, or for 45 days for a voyage occupying 10 or 11 days, especially seeing that the provisions inspected and put on board in the short voyages are of no earthly use to the passengers, in whose interest they are required to be there, are never opened, and are merely put on board to comply with the law and to find work for gentlemen who have retired from the sea service.

When once this subject is opened there will be ample work for the reformer; but in the meantime we counsel our shipowning readers to urge the matter upon the attention of Her Majesty's Government in order that it may be justly dealt with in the promised Merchant Shipping Bill of next session.

THE CHANNEL TUNNEL AND RAILWAY.

THE most recent of the Foreign Office commercial papers is compiled from the correspondence between the representatives of the French and English Governments upon the subject of the projected tunnel and railway beneath the bed of the Channel. The question having been considered by the Conseil Général des Ponts et Chaussées, we find the Count de Jarnac, in a letter to the Earl Derby, in the latter part of the year 1874, states that Lord Richard Grosvenor and M. Michel Chevalier, on behalf of the Anglo-French Committee, were endeavouring to obtain the concession for the execution of preparatory works in furtherance of this international scheme.

The project, which was first mooted at the period of the Universal Exposition in 1867, under the auspices of Napoleon III., had been retarded by the events of the Franco-German war, but the Government were desirous of favouring any enterprise that seemed likely to improve the direct communications between England and France. The Conseil Général des Ponts et Chaussées, after mature deliberation, had arrived at conclusions inimical to the proposal, although they intimated their apprehensions with regard to the unforeseen obstacles to be encountered from the condition of the chalk formations in the Channel, and hinted, moreover, at the more feasible plan for enlarging the existing harbours of Boulogne and Calais. The names, however, of Sir John Hawkshaw and M. Michel Chevalier were attached to the application of the projectors, which, combined with the triumphant issue of the Suez Canal and Mont Cenis excavations, seemed to warrant attention to the Channel Tunnel as another one of the probable feats of engineering.

The position in which the subject then stood may be gathered from the correspondence that took place between Lord Tenterden and Mr. Farrer of the Board of Trade. Lord Tenterden says :—

“ The consideration of this scheme, which had been suspended in consequence of the breaking out of the Franco-German war, has, as the Board of Trade will perceive, been lately resumed, and the Count de Jarnac now incloses a copy of a report on this subject, drawn up by a commission appointed to consider the questions of Channel communication between the two countries, and submitted to the Minister of Public Works, the Report being further accompanied by the decision of the Conseil Général des Ponts et Chaussées. The Board of Trade will observe that it is proposed to make the concession for ninety-nine years, to date from the time when the submarine railway is open for traffic; and further, that no concession is, for a period of thirty years from that

time, to be granted for the construction of any other submarine railway between the shores of England and France, it being the opinion of the Commission, as well as of the Conseil Général, that the amount of protection which it is thus proposed to extend to the Company in their projected undertaking against the competition of other parties is only such as may properly be accorded, whilst still keeping in view the principle of discountenancing any scheme which would assume the character of a permanent monopoly."

From the reply of Mr. Farrer, we learn that the promoters upon this side of the Channel had given notice of a Bill to enable them to acquire lands at St. Margaret's Bay, for the purpose of commencing operations.

"It was therefore desirable that Her Majesty's Government should make up their minds whether they would encourage the undertaking, and if so, on what terms. Under these circumstances, the following observations were offered upon the points raised :—

"1.—The Board of Trade can have no doubt of the utility of the work if successfully completed, and they think that it ought not to be opposed so long as the English Government is not asked to make any gift, loan, or guarantee.

"2.—As to the physical possibility or probability of completing it, the Board of Trade do not presume to offer an opinion.

"3.—As to the prospect of obtaining any income from the traffic sufficient to pay interest upon the outlay, they cannot, looking to the large sum required, and to the competition by sea (which must always exist in respect of merchandise, if not of passengers) take a very sanguine view. This, however, so long as the Government is not asked for money, is a matter for the promoters rather than for them."

Further on Mr. Farrer states that, "with regard to the military necessities of either country, this is a question for the War Office rather than for the Board of Trade. But it is clear that Her Majesty's Government must retain absolute power not only to erect and maintain such works at the English mouth of the tunnel as they deem expedient; but, also, whenever they apprehend danger of war, or of intended war, to stop traffic through the tunnel. And it is for consideration whether they should not have the right to exercise this power without claim for compensation."

Whilst these points were being discussed in a diplomatic manner by the two Governments, the joint promoters upon both sides of the Channel were pressing forward their project. In the French National Assembly a *projet de loi* was referred to a Commission composed of fifteen members, all favourable to the scheme; and the delay asked for by the Board of Trade with respect to the Bill before the English Parliament was ultimately overruled by the urgency of the French Government. Upon

the 15th August, 1875, we find that Lord Lyons announces the proclamation by the President of the French Republic of the law sanctioning the submarine railway between England and France. At this stage of the proceedings, a very practical suggestion for a joint committee was made by Earl Derby, and promptly accepted by the Duc Decazes. The names of Messieurs Kleitz, Gavard and de Lapparent were put forward on behalf of France, and Capt. Tayler, Messrs. Watson and Kennedy were appointed to act for the British Government. It was likewise decided that this committee, formed for the purpose of preventing all future differences either between the promoters and their respective governments, or between the Governments themselves, should hold its sittings in London.

The long project for uniting the railway systems of England and France by means of a submarine passage, seems therefore to have passed from the realms of phantasy to those of fact. The experiment will probably be made, and upon the ultimate success of the undertaking it is impossible to forecast, but at least one thing is certain, that the ingenuity of man will be strained to the utmost to master the difficulties of nature and obtain one more of the victories that belong to peace.

ROYAL NAVAL SCHOOL, GREENWICH.



At the distribution of prizes to the boys at this school on 21st December last, Captain Burney, R.N., the superintendent, made a most admirable address to the successful and unsuccessful scholars. The following extracts relating to the school itself will be of interest to many of our readers :—

“ I would remind the boys of this school that they are receiving a free education here in addition to being well fed, clothed, and lodged as a reward for their fathers' services. This noble institution was founded more than 150 years ago, to provide for the sons of invalid seamen ; it then began with only 10 boys, it has gone on increasing, till next year it will reach 1,000 boys. The character of the school has from time to time been altered ; at one time there was an upper and a lower school, the upper school was composed of the sons of officers in the Royal Navy and Mercantile Marine, whilst the lower was (as the entire school is now) composed of sons of petty officers, and seamen of the Navy, and non-commissioned officers and privates of the Royal Marines ; at that time the school was celebrated for the number of accomplished navigators it sent forth into the Navy

and Mercantile Marine. At the present time there are officers of all ranks in Her Majesty's Navy who have to thank Greenwich school for the positions they now hold. Some of my most valued friends in the Navy were Greenwich boys. There is my friend Captain Allen, now sitting on the platform, who always takes the deepest interest in this school, and another great friend of mine, Captain Balliston, who for many years has so ably commanded one of the Royal yachts, they were both Greenwich boys, and proud to own they had been so. I could mention fifty other similar cases. Now, I want you boys to be inspired with the same feeling, and emulate the conduct of those gone before you, although in a different position in life. Whether you enter the service as pupil teachers, writers, ship's stewards' boys, or with the idea of becoming seamen, you should do so with a determination to be equalled by none. I should like you to feel that being a Greenwich boy was a passport to you through life, and a guarantee for your good behaviour. A few years ago, the Lords of the Admiralty being desirous that a boy should be so educated and trained here as to fit him for that station in life which it has pleased God to call him, re-organised the school, and divided the education under two heads, scholastic and industrial, believing (and I firmly believe it myself) that the one would assist the other in expanding a boy's mind, and making him a better man. I wish to impress on each of the boys' minds who have the privilege of being an inmate of this noble institution, that he belongs to not only the noblest and first institution in the country, but that it is equalled by none in the world. I would also impress on his mind that the reason he is here is a reward for his father's services. I wish the boys of this school particularly to think of this, and to know that no interest can place him here. He is exclusively put here as a reward for his father's merit."

"My greatest thanks are due to the officers, the instructors, and all the members of the staff for the great support and cordial co-operation they have always rendered me in the management of this extensive establishment, and in carrying to a successful issue the re-organisation of this institution; but their efforts combined with mine would have been useless had we not, during the last six years, enjoyed the full confidence and support of the Lords of the Admiralty. To Sir Massey Lopes is this school especially indebted; in the first place for the increase of 200 boys to the school, which was one of the greatest boons which the Lords of the Admiralty could ever have conferred on the men of the fleet, and in the second place to the many improvements and additions in the school for the comfort of the boys during the last two years.

"During the last five years the school has had many additions, the magnificent gymnasium we are now assembled in, our bathing pond has

been covered in, and I hope before long hot water-pipes will be laid on to enable the boys to bathe during the winter months. We have had a splendid drill-ship built on the parade, a laundry and bakery, workshops for all the principal trades, seamanship instruction-rooms unequalled in the country, and last, but not least, we have a new dining-hall building capable of dining 1,200 boys; also a new dormitory, as the number of boys in the school will next year be raised to 1,000. I am proud to say that it has been in our power, not only to improve the efficient state of the school, but to considerably curtail the expenditure. Although the boys' dietary has been very much improved and increased, our standard of education is equal to any middle-class school in the country. whilst the cost of the school will compare most favourably with the most expensive school in the country."

THE BOARD OF ADMIRALTY AND THE BOARD OF TRADE.

MR. L. AGAR ELLIS writes to the *Times* as follows:—"I am glad that attacks have been made within the last few days on the constitution of the Admiralty. It is of no use to attack the First Lord; he is like the Thames yachtsman of old—'knows nothing and fears nothing;' I am speaking of the *genus*, not the man. Neither is it of any use attacking 'my Lords;' they are collective—one might as well anathematise Madame Tussaud's collection. Responsibility for the management of the Navy is a shuttlecock, and the players are the members of the Board. What is wanted is the power of individualising the responsibility; but as long as the office is in its present shape this is impossible."

The Board of Admiralty is objected to because there is no power of "individualising responsibility." It is the old cry, which, from very early times, has been expressed in various ways to the effect that a Board has no sense of shame, no conscience, no soul to be saved, &c., &c. Business men, as a rule, prefer dealing with a responsible individual rather than with a collective body.

There are, however, some persons who desire to establish in the Board of Trade what others wish to disestablish in the Admiralty, and to have the former department so re-organized that it shall consist of a Board of individuals who shall meet at stated times to discuss and settle the important matters which are dealt with by the Board of Trade. The advocates of this change, moreover, would like the Marine Department

to be a separate Board, presided over by a sailor, and supported by colleagues consisting of lawyers, doctors, sailors, naval architects, and engineers.

There can be no doubt that Boards of this kind would be strong, and sufficiently awe-inspiring to obtain the confidence of the general public, who know very little about the necessities of the case, but it is well to consider whether the Board system is really adapted to such business as is carried on now at Whitehall Gardens.

Under the present system, in which, as most of our readers well know, there is no Board, the opinion and advice of a departmental head or officer can be readily obtained and often advantageously and promptly acted upon, and the engineer, shipowner, shipbuilder, or master mariner concerned, while profiting by the prompt attention given, knows who to blame for any wrong direction, opinion, or advice in such a case; but with a department presided over by a Board and a chairman, no one would think of asking the individual opinion of a member or an officer of the Board on any important point connected with the business of the department, and he would be a bold man who, being an officer, member, or even chairman of the Board, would care to give advice or opinion. The action of Boards must necessarily be slow and deliberate, and considerations of etiquette and routine will inevitably help to clog the wheels of business, considerations which are seldom likely to influence the responsible official whose object is simply the rapid and effective despatch of business. We can understand that permanent officers might be glad to shelter themselves behind an imposing body of influential gentlemen composing a Board, and thus escape the continual personal abuse which too often is the reward of hardworking and zealous public servants, and also be saved the trouble and responsibility of deciding important questions; but it is more than possible that the Public Service would suffer to a considerable extent if a real Board had to administer the functions of the Board of Trade, and there can be no doubt that the shipowner would cry out more loudly than ever by reason of the delays inseparable from Board meetings and discussions, of the immobility of a Board which had once committed itself to an opinion or a policy, and of the difficulty in making the Board or any member of it responsible for wrong action. The tendency of all service under Boards and Corporations is either to render the persons connected with them an army of more or less blind worshippers of a great and incomprehensible fetish, or else, under the deadening influence of the service, to make the majority of the members, officers, and servants indifferent to anything like hard work, such as the searching for fact in complicated cases involving details with which they are not much acquainted, and to care little for the efficient discharge of general business; while some few astute men with their

eyes wide open are entirely trusted to in regard to the work, and the Board simply become godfathers for the acts and opinions of those men.

The work of the Board of Trade, necessitating, as it now generally does, immediate and vigorous action, could not, we fear, be successfully carried on by the cumbrous machinery of a Board, and those who know most about the matter and have had the most experience will, we do not doubt, agree with us.

CORRESPONDENCE.

SHIPS' COMPASSES

To the Editor of the "Nautical Magazine."

SIR,—In your *Nautical Magazine* for December, I noticed an article headed "Ships' Compasses," which contains a great amount of truth regarding the way vessels are fitted out and adjusted.

I, being a master mariner, was appointed some six years ago to take command of a vessel built on the banks of the Mersey. The vessel when ready took in a cargo in the Morpeth Dock, Birkenhead, and then came the ordeal of swinging the ship for the purpose of adjusting the compasses, and when this performance was over the vessel was taken in tow and sent to sea, although the adjuster would not guarantee the accuracy of the compasses, or anything near it, on account of the number of large steamers lying in the same dock. I counted myself no less than seven; and when going down Channel the ship was very near running ashore, the weather being so thick. I could not get any observation; I resolved to lay to until I could get the sun or some object, and when I got a glimpse of the sun I found out that with the ship's head S.S.W., the compass stood S.W. by W., this being three points of error which is extremely dangerous, particularly in dark weather in winter time. Having determined the error I proceeded on the voyage, and in eight days after leaving the dock the compass became utterly useless on account of its sluggishness; that is to say, alter the ship's head four points, the compass would only indicate $\frac{2}{3}$ of a point. This I attribute to the great amount of error and the inferior quality of the compasses.

Liverpool, January 15, 1876.

THOS. BROWN.

COURTS OF INQUIRY AND NAUTICAL ASSESSORS.

To the Editor of the "Nautical Magazine."

SIR,—Some remarks appear in the *Nautical* for December upon "Courts of Inquiry into Casualties to Merchant Ships, and the Duties of the Nautical Assessors appointed to assist the Magistrates presiding in such Courts." The remarks infer, if they do not directly state, that nautical assessors should take no part in the proceedings whatever, except in giving advice to the magistrates when it is asked. It is even hinted that on some occasions assessors have interfered to such an extent as to cause a sort of scandal.

In England these Courts are presided over by a stipendiary magistrate, generally a barrister, supposed to know the laws governing the taking of evidence, and to be acquainted with the procedure of courts. In Scotland such courts are constituted of two or more Justices of the Peace, having no knowledge of law whatever. They are appointed by the lords-lieutenant of counties, and are recommended to him by his local law agent either on account of their social position or their political services.

The prosecutors in all cases are lawyers practising before the local courts—neither lawyers nor judges having any nautical knowledge whatever. It is difficult to understand how the truth is to be elicited by agents or judges in cases requiring a technical knowledge of the subjects of inquiry. We have seen assessors sitting and wincing under the infliction of a protracted verbose examination, which tended rather to stupify the witness than bring out the truth. Unless the courts can be constituted so as to have a judge qualified legally and nautically, *rara avis in mare*, we fail to understand how such inquiries can be carried out satisfactorily without some modicum of interference on the part of the assessors; in the ordinary Justice of Peace Court, or Burgh Magistrates' Court, the legal adviser or assessor to the Court becomes virtually the judge, and it cannot be otherwise if justice is to be obtained.

I think that the assessors should, as much as possible, refrain from any interference with the examination of witnesses until both the examination-in-chief, and the cross, are concluded, when, politely asking the permission of the Bench, he proceeds to elicit the truth nautically. Magistrates generally willingly concede the privilege, sometimes even request the assessors to ask questions, and we have seen the prosecuting lawyer go to an assessor and ask him to bring out certain points involving nautical knowledge.

I have seen in a court of inquiry a man made to give evidence directly contrary to what he meant, and on a most important point, simply from the confusing and ill-understood questions of the prosecutor. One of the assessors asked the Bench's permission, stated his belief, got liberty

to question the man from a sailor's point of view, and brought out the correct answer, which was just the opposite of what was written down.

In another court the officers were being tried for the loss of their vessel, where she was running with the wind abeam, all plain sail set, and a fresh breeze, to pass an island having two lights, one 380 odd feet high, the other 28 feet high, and at the extreme point of the island, off which there was a reef. An excellent look-out was kept; the master, a successful navigator, was owner, and the vessel under-insured; the whole of the watch on deck, with an *esprit de vaisseau* for which sailors are famous, declared they only saw one light, and that, the low light. The Court seemed satisfied; not so the assessors, one of whom asked an intelligent A.B., who had relieved the wheel half an hour before the vessel went ashore, "You say you saw the light distinctly about a point and a half on the port bow? How high did it appear a quarter of an hour before the vessel struck?"—Hesitation—"Was it as high as the foretop to your eye?" "Not quite?" "Was it two-thirds the height from the deck to the top?" "Yes." It was clear it was the high light they saw. The look-out was kept entirely on the weather-side; and it was only when the master went to the lee-side and saw breakers that they discovered they had never seen the low light. "Hard a weather" was the order, but before she paid off sufficiently she hurled up on to the reef and left her bones there. Lawyers cannot understand such things, sailors may.

These are important tribunals, and they are exercising a very wholesome influence on the merchant service; but the assessors should be carefully chosen, not appointed by influence, but because they are experienced, calm-thinking, calm-judging men. Above all, they should be chosen from the merchant service, and not from officers of the Royal Navy. It may be a prejudice, but we know it exists widely in the merchant service, that Royal Naval officers cannot understand the working or handling of a merchant ship, or even the appliances on board, as they have never been acquainted with or come in contact with them. These courts of inquiry are frequented by an audience composed of officers and sailors, all desirous of listening to the evidence in cases involving the character and certificates of their fellows. We have seen in a court so attended what reporters call a "sensation" produced, even a loud laugh caused, by the questions of a gallant naval officer, who by them proved that he did not understand the *modus operandi* on board of a merchant ship.

Yours truly,

MERCATOR.

December 20, 1875.

UNSEAWORTHY SEAMEN.

To the Editor of the "Nautical Magazine."

SIR,—As you have all along taken a deep interest in the seamen's question, we send you annexed extract from a letter just received from one of our most intelligent ship's captains. It is in harmony with almost all our captains' reports of seamen.

Yours truly,

WILLIAMSON, MILLIGAN & Co.

Liverpool, 11th January, 1876.

Extract of Captain Burges's Letter, ship "Marmion," Newcastle, N.S.W., November 4th :—

"Since I have been master of a ship I have never had so much trouble with men as this time. It is almost enough to dishearten one from trying to make them comfortable. The moment they get into a port where pay is better than what they have agreed for, they coolly come aft and ask for their discharge without making any complaint whatever, and, if refused, they are aft next morning and want to go to the hospital, shamming illness—anything to get clear. I think if Mr. Plimsoll would look more into the character of the sailors of the present day, and not so much to the load-line, he would be nearer the mark.

"If he would only make one voyage to the colonies, and just see the number of first-class ships, well-found in every respect, both as regards stores, rigging, &c., lying at Sydney and Newcastle at the present time, with scarcely a man on board, all having deserted for higher pay, he would not be so apt to condemn respectable shipowners, nor yet say the fault is all on our side. The officers and apprentices are all doing and behaving well."

SAFETY-VALVES.

We have received a letter from Mr. H. R. Robson, of Glasgow, stating, in reference to the article on the subject of direct-acting spring safety-valves, subscribed "Molecular Vortex," which appeared in our January number, that the writer of the said article has made a gross mistake in thinking that the safety-valve he endeavours to hold up to ridicule is fitted as he seems to imagine. Mr. Robson says :—

"The valve in question is upon a land boiler, and the malleable iron joint attached to the lever at C' in his sketch, has at its foot a centre point which rests in a corresponding centre hole on the top of the brass valve in the usual way that land boilers are fitted, therefore the valve is perfectly free to rise. The dead weight was removed and a Salter's

spring attached, simply to see the difference of accumulation with the different methods of loading.

“I do not take the slightest credit for inventing a safety-valve, but I do take credit for having made an arrangement of springs for loading Government safety-valves of marine boilers, which is safer and better than the old dead weight, and also for having been the first engineer to get spring-loaded Government safety-valves passed by the Board of Trade surveyors. My aim all along has been the introduction of spring-loading, irrespective of any style of valve. I may say, as I did upon the occasion of reading my paper to the Institution of Engineers and Shipbuilders here on the subject, that ‘I am not advocating any patent so far as I am concerned, all is as free as the air we breathe.’ ”

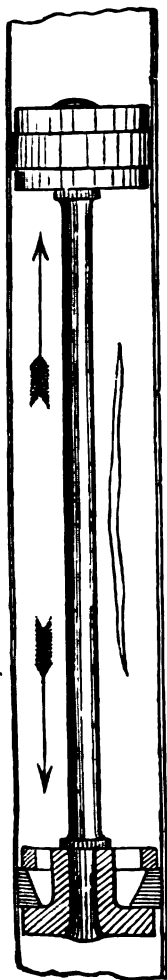
MARINE INVENTIONS.

[On receipt of a summarised description of any new invention connected with ships or navigation, the Editor of the *Nautical Magazine* will publish, under the above heading, a brief account of it.]

THE EJECTOR VENTILATING COWL.—It is claimed for this cowl that it effects effective ventilation by sucking from the apartment to which it is attached all foul or heated air, gas, dust, and all impure atmosphere. The wind enters the large end of the casing, which is kept to it by means of a vane, and in its passage through the cone, causes a vacuum in the mouth of the shaft that is immediately filled by the atmosphere from the room beneath, thereby ensuring a gradual and constant removal of all atmospheric impurities, and a perfect ventilation. In order to ventilate ships' cabins, state-rooms, and w.c's, perforated pipes are carried close under the ceiling or deck, and connected to one or two large ventilators, placed in a suitable position on deck; these latter constantly sucking, will remove all hot or vitiated air, its place being supplied by fresh, which will readily find its way down the companion when the foul air is withdrawn. Their use in colliers is very important, for when fitted to the hatches, all gas will be constantly withdrawn. The cowls can be unshipped when loading or unloading; but in loading they are of great use in clearing off coal dust or grain dust from holds of vessels, thus allowing men to work in comfort. In wooden vessels the ventilation constantly kept up by these cowls is a great preventative of dry rot; and in grass or other cargoes liable to heat and spontaneous combustion, their value is obvious. These ventilating cowls being quite open and unobstructed in their passages by revolving screws or other contrivances, which have to

be driven by the hot or foul air, and which is thus impeded in its escape, are never liable to become choked up or get out of order, as, beyond a spindle to move on like a weather vane towards the wind, there are no moving parts. For cabins or buildings a regulating valve should be fitted to the main shaft of the ventilator, to increase or diminish the suction of the cowl at will.—Wawn and Wilcox, Patentees, 64, Fawcett Street, Sunderland; and John H. Wilson and Co., Cornhill, Liverpool.

BOILER TUBE STOPPER.—*To the Editor of the "Nautical Magazine."*
—Sir,—Under the above heading in your December number, appears an illustration and a notice of a boiler tube stopper recently registered by Mr. J. S. Brewer, of Cardiff. Permit me to call your attention to a tube stopper, patented by Messrs. Ley and Shearer eighteen months ago, which is, and has been for the last eighteen months, extensively used by the large steam shipping companies of Liverpool, London, Hull, &c. This stopper, a section of which is shown in the margin, consists of two cast-iron pistons, $\frac{3}{8}$ ths of an inch thick and about $\frac{1}{4}$ of an inch less in diameter than the inside of the tube, connected together by a $\frac{3}{4}$ -in. wrought-iron rod 18 inches long; a $\frac{1}{2}$ -in. square groove is cut in each piston and a vulcanised india-rubber ring placed in it. The inner faces of the pistons are perforated immediately under the rings. When a tube becomes pitted through, or fractured from any cause, this stopper is placed in it, and pushed along until the forward end passes the fracture, when the escaping steam and water, entering the perforations, presses against the under side of the ring, and causes it to expand and completely stop the tube, even if the tube is not of a regular form. The pistons being made rather smaller than the tube, both ends of the stopper readily enter it, and no iron ring or other appliance is necessary with it. The efficiency and durability of these stoppers have been conclusively proved, they have frequently been subjected to very severe tests, being applied to leaky tubes in boilers with steam at 60 and 70lbs. per square inch, shortly after leaving port, and they have always remained in position, and effectually prevented any escape of water or steam during some of the longest voyages, and in no single case has there been a failure.—I am, Sir, your obedient servant, George Shearer, Engineer, Liverpool.



LIFE-SAVING WAISTCOAT.—Mr. Ernest Schönrock, a German, resident at Brussels, has invented an improved life-saving waistcoat which may be worn on the passage of a vessel and inflated by a mouth-tube, whenever necessary, to prepare it for use. This waistcoat is manufactured from a preparation of india-rubber, and formed in separate fluted chambers, so that, in the event of damage to one, the buoyancy of the others may serve the purpose of keeping the wearer afloat. Mr. Schönrock calls his waistcoat the "Sailor's Friend;" and, as an emblem of recognition, he adopts the red cross on the tube and the back of the vest as a distinguishing signal of distress. The waistcoat when not worn is carried in a tin tube, which has a lid to screw down, and straps are provided to sling it over the shoulder. The whole weighs only 2 lbs. The inventor suggests—as the tin tube is perfectly watertight—that papers, money, or jewellery might be placed inside of it for safety, in addition to which it could contain a flask of brandy and a few biscuits. The empty tube itself is sufficiently buoyant to sustain a person's head above water, if its possessor knows how to secure it on his body or to hold on by it. Mr. Schönrock purposes, also, to make a coarse and strong description of waistcoat, on the same principle, to be thrown on board stranded vessels from the shore by means of the mortar or rocket apparatus.

IMPROVED LEAK-STOPPER OR PAD.—Constructed of strong canvas, or other suitable material, stuffed with oakum, quilted, and roped all round; supposed size—20 feet long, by 12 feet wide, and 3 inches thick; one or two grummets about the centre, for extra securing, from the inside when practicable; a 1-inch galvanized round iron bar, weighing about 25lbs., encircled in the canvas, across the head, to each corner of which a strong line is bent on for making fast on deck; a 2-inch galvanized round iron bar, weighing about 120 lbs., encircled in the canvas, across the foot, to each corner of which is attached a galvanized chain bridle, with chain of sufficient length to pass under the body of the vessel, and be made fast on deck on the opposite side, a light line being bent on to the end for the purpose of hauling the chain round, and provided with a slip weight to facilitate sinking it under the bow. The weight of the pad itself would be about 3 cwt., and of the complete apparatus about a quarter of a ton; and would occupy about 12 by 3 feet of deck space. This pad is more particularly applicable to leaks from collision above or below the water line in the broadside, and it is not pretended that it would be equally efficacious when the damage is in the bow or run of the vessel.—*Mode of Application*:—The pad being rolled up and placed on the rail above the leak, make the two head lines fast on deck, allowing for the pad to drop the required distance, then the latter may be let go and allowed to unroll itself down the side of the vessel over the leak, the chain at the foot being let go at the same time to its full length, the weight of which, say

about 2 cwt., together with that of the iron bar, and the suction, keeping the pad meanwhile in position; next, haul the line attached to the end of the chain along the deck to the bow of the vessel, getting it under the bottom by aid of the slip weight, and then pass it along the opposite side of the deck until abreast of the leak, when it may be hauled in, and the end of the chain made fast on deck, thus thoroughly securing the pad in its position. Care must be taken not to haul on the chain when passing the line along, otherwise it would disturb the pad. Another way of proceeding would be, after making the two head lines fast on deck, first, take the line attached to the chain forward, getting it under the bottom and hauled along the opposite side of the deck to abreast of the leak, then haul it in with the chain until taut, when the pad may be let go to unroll itself down the side of the vessel over the leak, the slack of the chain being hauled in at the same time, then make fast, and the pad would be securely fixed in its position. This plan might at all events be more advisable than the other in a heavy sea.—Joseph Gibbons, 33, Falkner Street, Liverpool.

PATENT AUTOMATICAL SHIP'S BOAT RELEASING APPARATUS.—This invention provides for the instantaneous and simultaneous releasing of ship's boats from their suspending means, and is particularly adapted for the ordinary tackles used on board ships for that purpose. It is claimed that the result of using this invention is that upon lowering the boat into the water (whether the ship be at rest or proceeding at speed) the detachment takes place so quickly, yet silently, that the first intimation of its having been effected, is to find that the tackles are swinging clear, and the boat under the immediate control of its crew. No ropes, or chains, or gear of any kind have to be unrove, unwound, or cleared, nor is there anything in the boat to interfere with its free use for crew, or passengers, baggage, or stores. By no accident can one end be detached before the other, and a simple arrangement prevents its being released when not required by the action of the sea, or any other means. The boat can also be re-engaged for hoisting with equal facility.—Joseph Leeman, Aberdeen.

BOOKS RECEIVED.

Compass Correction and Iron Ships, with a description and directions for using Saxby's Patent Spherograph, &c. By S. M. Saxby, R.N.
London: The City Printing Company, 5, New Street, Bishopsgate Without.

THE object of this pamphlet appears to be simply to demonstrate the practical utility of Mr. Saxby's spherograph, an instrument which has been before the maritime world for some years. In our opinion the spherograph is a most valuable invention for finding the error of the compass of iron ships by the bearing of any celestial body, and no iron ship should be without one on board. It might be hung up in the companion or wheel-house, and supposing any known heavenly body to be visible, any intelligent lad on board could find the error of the compass as often as the course might be changed, by means of this instrument. It can also be made useful in the solution of any spherical triangle where an approximate result only would be sufficient for the purposes of the navigator, as in all cases of deviation. There is much in the pamphlet that is irrelevant, and much with which we cannot agree, but in regard to so valuable an invention as the spherograph we are glad of the opportunity to speak of it in as favourable a manner as we consider it deserves, and do not think it necessary to enter upon the discussion of other less important matters referred to in the pamphlet.

The Coming War. England without a Navy. London: Longmans. 1875.

THIS is a small brochure in blue paper covers, printed on tinted paper, and divided into short chapters, each one supposed to be pregnant with a startling revelation. From various allusions in the text, we learn that the author knows a Lord of a past Admiralty, that a friend of his knew Lord Palmerston, and that he himself is "a professional man, practically acquainted with the subject for thirty or forty years." Thus qualified, the author feels himself justified in telling the world, or such portion of it as may chance to read his little book, that England has not a Navy—that is to say, not a British Navy (the author will probably except the *Navy* which appears weekly); that we have spent £200,000,000 in "feeling our way," "making experiments," &c., and now the only fleet we possess worth calling men-of-war consists of, perhaps, a dozen ships with some sea-going qualities and with some fighting qualities. But, happily, the author has some good news in store for us, viz., that England can have a fleet for an immediate outlay of £50,000,000 cash.

After describing the dangers which are looming a-head, and suggesting the attitude and the action we should take under the circumstances, the writer tells us how to lay out the fifty millions, after having informed us that to obtain this sum "a 2½d. income-tax is amply sufficient to give interest and repay capital." A British Navy must contain at least six fleets, each fleet to consist of 10 sail of the line, £5,000,000; 10 frigates, £2,500,000; 10 sloops, £1,250,000; 100 gun vessels, &c., £1,250,000—total, £10,000,000. Fifty million will give five such fleets, and the other one can be made up out of existing ships. The Admiralty is not to be allowed to carry out this project, but a special body is to be established for the purpose, by means of which a navy may be created by the united strength, ingenuity, skill, resources, work-shops, building yards, and labours of the English manufacturing and shipbuilding nation, to be "handed over when completed to the hands of our trained official administrators."

Such is an outline of the scheme put forth in the pages of the work now before us. It is, no doubt, intended to create a sensation, but we fear that, notwithstanding the external effect produced by tinted paper, short chapters and paragraphs, notes of admiration and interrogation, it will fail to stimulate the public taste already surfeited with alarms and cries of "wolf." For ourselves, we do not think that the state of things is one quarter so bad as the writer of this pamphlet makes out, although we might be disposed to pick some holes in our naval administration. We imagine the writer to be a gentleman of strong feelings and great enthusiasm, who is so deeply impressed with what he considers the present grievous state of things that his mind is completely filled with it, and he is unable to see anything save his own melancholy picturings and the remedies which he thinks would alter matters. To carry out his scheme would simply entail the *bouleversement* of all our present organization, would rouse the indignation of the British tax-paying public, and would be quite likely to prove much more of a failure than that which the author asserts is the case with our present ships of war. The whole scheme proposed is of the vaguest and most unpractical character, and before it ever can be considered in anything like detail, the author must come out from his anonymous disguise to substantiate his assertions, and then explain how he means to carry out his startling remedies.

Physical Geography; or, the Terraqueous Globe and its Phenomena. By William Desborough Cooley. London: Dulau and Co., 37, Soho Square. 1876.

THE author of this volume appears to be afraid that the science of physical geography has not had full justice done to it by some who

make geology their special study, and the publication of the work now before us is indeed a splendid protest against those who do not take a large and comprehensive view of this noble science. Mr. Cooley justly claims for physical geography the duty of trying to establish the connexion of the great physical laws which govern the universe with the phenomena observed on the earth's surface, and he therefore devotes a large portion of his book to the consideration of the chief physical laws, and their operation in the universal system visibly upheld and controlled by them. By these means the author concentrates all the existing knowledge of those laws, and shows their direct or collateral bearing on the manifold and diverse phenomena displayed in connexion with the land, sea, and air. Like a true natural philosopher, Mr. Cooley sees, with broad vision, unity and harmony everywhere prevailing, and is not satisfied with any empirical explanation of occurrences which, though convenient to support a theory, is not in accordance with actual knowledge concerning the operation of natural laws. In our opinion the condition of mind necessary to comprehend the continuity of law and causation is the direct outcome of careful study of all branches of science, and Mr. Cooley no doubt feels the necessity of penetrating somewhat deeply into the wide domain of physics in order to grasp thoroughly the subject of physical geography. It is not our intention to enter into such a detailed criticism of this work as it deserves, for it would occupy more space than we can devote to the subject, but we may nevertheless with perfect confidence commend the book to those of our readers who are interested in the scientific questions bearing upon navigation. The chapters on astronomy, the atmosphere, winds and storms, clouds, the ocean and its currents, magnetism, &c., are all full of sound information conveyed in a simple and intelligible manner, and though here and there the author is disposed to battle with some of the generally received opinions, on the whole the work may be taken as a useful and valuable *vade mecum* of all that pertains to the science of physical geography.

Reports of the Meteorological, Magnetic, and other Observations of the Dominion of Canada for the Year 1874. Ottawa. 1875.

THIS supplement to the Annual Report of the Minister of Marine of Canada shows that meteorological science is much encouraged by the Dominion Government. At all the principal ports there are time balls dropped at one o'clock, and storm signals exhibited when warnings are telegraphed from the chief stations. It is extremely satisfactory to know that Canada is in so advanced a condition as regards meteorological science, and is doing so much to aid the mariner.

The History of Lloyd's and of Marine Insurance in Great Britain, with an appendix containing Statistics relating to Marine Insurance. By Frederick Martin. London: Macmillan. 1876.

MR. FREDERICK MARTIN, author of the "Statesman's Year Book," the "Commercial Handbook of France," and other works, has produced a work of much interest alike to the man of business and the historian, entitled "*The History of Lloyd's and of Marine Insurance in Great Britain.*" Starting with the settlement near London Bridge of the Hanseatic merchants of the Steel Yard, subsequently known as the Guildhall of the Germans, the author next traces the first establishment in London, about the middle of the 13th century, of the fugitive "Lombards," who followed the footsteps of previous adventurers who had already settled here, namely, the Flemings, Danes, Germans, and other Hanseatics and Easterlings. "Only a few of the new immigrants," says Mr. Martin, "engaged in trades, such as those of goldsmith and jeweller, and the great majority took to making a living by lending out money they had brought with them on interest. In the language of the times, they became 'usurers.' This was enough to create general hatred, which increased when it was found that the obnoxious foreigners were rising in high favour at Court." From the establishment of the Lombards in London may be dated the true origin of marine insurance in this country. The system of protecting maritime ventures by an undertaking to that end, given by some person who accepted the risk for a consideration, had been known in Italy long before it was introduced into England. The neighbourhood of San Marco and the Rialto, the centre of the commerce of Venice, was also that of marine insurance, and one of the streets of that town was known as Insurance Street. There is a document in the archives of Venice, dated 1512, which refers to insurances effected in London on ships and merchandise despatched from the Island of Candia to England, the premium being 10 per cent. Evidence of a still earlier connection between Italy and the Italians located in England in insurance matters is to be found in a work called the "Treaty of Commerce," ascribed to Uzzano, of Florence, and dated in 1400, where there is frequent mention made of insurances effected between London and Florence, and this connection appears to have increased after the subjugation of the port of Pisa by the Florentines, when Florence acquired a larger maritime commerce and produced a code of maritime laws. Up to the close of the 16th century the insurance business of this country continued in the hands of foreigners—Germans, Flemings, and Italians—but the commencement of the 17th century formed the starting point of a new period in the history of marine insurance in England. During the second period, gradually, but certainly, the business of marine insurance was taken up by native enterprise and

prosecuted with excellent results. The earliest law relating to marine insurance on our Statute Book, is the 48rd of Elizabeth, passed in 1601, and it referred to the practice of insurance as having been "tyme out of mynde, an usage amongst merchants both of this realme, and of forraigne nacyons." The connexion of the great institution known throughout the world as "Lloyd's," with the system of marine insurance, is traced out by Mr. Martin very completely, and in a manner to interest even the casual reader. In the year 1689 there stood in Tower Street a coffee-house kept by one Edward Lloyd, much resorted to by seafaring persons. A few years later, in 1691 or 1692, Lloyd removed to the corner of Abchurch Lane and Lombard Street. Hard by the Exchange Alley, according to Strype, were "divers eminent coffee-houses—Garraway's, Jonathan's, Baker's, Eloner's—chiefly frequented by brokers, stock-jobbers, Frenchmen, Jews, as well as other merchants and gentlemen." Here Lloyd gathered rapidly round his establishment a shipping connexion, and having secured this, he started a paper which he called *Lloyd's News*, and which rapidly assisted in extending his connexion, and in keeping it together. His house became a place for the sale of ships and merchandise, wines, spirits, and other articles; gradually the transactions relating to shipping came to predominate over all others, until, as Mr. Martin points out, Lloyd's coffee-house became the head-quarters of maritime business, including marine insurance. But it was not until the publication of *Lloyd's List* in 1726, and very much in its present form, that the proper starting point of the present institution of Lloyd's was reached. Thenceforward was provided the means of collecting and distributing news relating to ships and shipping. This news was essential to the owners of shipping property and to underwriters, who all flocked to the source of intelligence, and so it came to pass that long after Edward Lloyd, the "coffee man," had been gathered to his fathers, the machinery he had contrived for keeping his customers together survived, and led eventually to the establishment of the great insurance mart of the civilized world. The transfer of Lloyd's from Lombard Street to the Royal Exchange was effected in 1771, by the exertions mainly of a pushing successful foreigner, by name John Julius Angerstein—and there, chiefly by the same agency, was established Lloyd's Registry of British and Foreign Shipping, greatly enlarged and improved by the efforts of later and perhaps abler men. With what is termed "New Lloyd's," in contra-distinction to the old Coffee-house Society, originated the documents known as Lloyd's policies, and the modern institution which still survives, a great and practical reality, as well as an historic relic.

To the very interesting pages dealing with the origin and progress of the institution, Mr. Martin has added some valuable chapters on the

growth of the Law of Marine Insurance, on Parliamentary Inquiries into Marine Insurance, on Insurance Frauds, on the Repeal of the Companies Monopoly, on the Modern Progress of Marine Insurance Companies, on the story of the *Lutine*, on Lloyd's Registry, and on the present Constitution and Management of Lloyd's. All these will amply repay perusal. The chapters on the growth of Marine Insurance Law are informative, though it is to be regretted that the writer has not brought his review down to the present time. The work would, however, in that case, no doubt have transcended the limits prescribed for it. The main object of the author has been "to show how the system of Marine Insurance became developed. Slowly, at first, when our foreign commerce was in its infancy, and more and more rapidly with the growth of trade to its present dimensions," and he endeavours to point out that, "the best possible and securest protection for British sailors and British ships lies in a perfect system of marine insurance securing alike the interests of individuals and those of the nation."

Storms: Their Nature, Classification, and Laws, with the Means of Predicting them by their Embodiments, the Clouds. By William Blasius, formerly Professor of the Natural Sciences in the Lyceum of Hanover. Philadelphia: Porter and Coates. London: Lockwood and Co., Stationers' Hall Court.

THE author of this volume considers that meteorology at the present time appears to be in a state of transition; that the theories which have been set up seem now to be acknowledged as insufficient, and that nothing better has been put forward to take their place; and he quotes many distinguished authorities in all parts of the world in support of his statement, that notwithstanding the numberless meteorological observations which have been made and recorded during the last thirty years, actual knowledge regarding the laws governing the phenomena of winds and storms has not made any really practical advance.

This statement cannot be denied, for although we have developed a sort of storm-warning system around our coasts chiefly by means of the facilities offered by telegraphic communication, yet the warnings conveyed are admitted to be based on no scientific principle, and for all the prophets can tell are quite likely to prove false predictions. The rules with which mariners are furnished as meteorological guides are mostly mere rules of thumb, founded it is true upon general experience, but having no basis of law. The theories regarding the causes and movements of storms are theories only, ingenious enough, but explaining parts only of the observed phenomena. The theory supported by Redfield, Reid and Piddington as to the cyclonic nature of storms, fails to explain how or why the rotary motion is

initiated and maintained, and the theory of Espy as to the inblowing of a large body of air toward a common centre or central line caused by the rushing upward of an air current, fails to explain how and why the air rushes upward. Professor Blasius, surveying the ruins of past theories, and at the same time being filled with the desire to draw from nature the secret of these phenomena which are so often attended with terrible disasters, has gone directly to nature herself, and after a patient and elaborate questioning interprets the great mother's answer thus—that these great aerial convulsions are produced solely by alternations of temperature in different parts of the atmosphere, and the well known phenomena of the motion of locally heated air, varied by the irregular configuration of the earth's surface. Upon this theory Professor Blasius builds up a most interesting and instructive work, and in laying before the world the results of his painstaking labour he is, whether right or wrong in his theory, giving a healthy impulse to the somewhat dormant science of meteorology. In the chapter on aerial currents and clouds, he classifies the various kinds of storm, and at the same time gives the characteristic clouds which, from the nature of each storm, he considers will be formed, and in the end he endeavours to prove that “in the clouds are pictured all the workings of the atmosphere around us, and that Nature thus gives unmistakeable warnings of the storms she is about to send.”

We cannot discuss Professor Blasius's theory in detail, for our space is limited, but we welcome his most interesting book, and hope that his observations will receive the consideration they deserve from all interested in the development of meteorology.

Bibliotheca Ichthyologica et Piscatoria; or, a Catalogue of Publications upon the Subject of Fish, their Natural History, the Fisheries, Pisciculture, and the Laws Relating thereto, &c. Compiled by D. Mulder Bosgoed, Librarian to the Rotterdam Institute.

At the International Exhibition of the products of the fisheries, which took place at Bergen, in Norway, in the year 1865, a catalogue of the Dutch contributions was published, under the direction of the Society of the Sea Fisheries, to which was added a list of the works written upon fish and fisheries, with the laws and regulations that had been passed in Holland, pertaining thereto, at different periods. M. Bosgoed furnished an inconsiderable portion of the materials required upon this occasion, and whilst thus engaged, he did not fail to observe how the ground then occupied by him had remained untrodden, and the desire arose to devote the leisure hours at his disposal to supplying the void which seemed to exist. In this preliminary effort a list of about 3,000 works upon

the subject was drawn up by the year 1867, and the publication was undertaken by the Directors of the Dutch Society for the Encouragement of Industry, the parts appearing at intervals between the years 1868 and 1871. The larger volume, which has been more recently published, is upon a far more extended scale, and the classification, to which the author has given great attention, is, without doubt, one of the best that could be devised.

The first portion is devoted to a catalogue of the works upon the natural history of fishes, and their number, about 2,800, consisting of dictionaries, encyclopædias, books, treatises, &c., by various authors. To render research more easy and also more minute, the system of subdivisions has been followed; thus the herring, the salmon, and the cetaceous fish, are under separate headings. There are, besides, nearly 200 references that can be made to works upon pisciculture. The second part catalogues the books, essays, &c., that treat upon the fisheries themselves, whether Dutch or English, or more especially of the herring, the whale, cod, oyster, &c., not excepting the inland river fisheries. The concluding pages contain the charters granted, the laws and regulations that have been passed in Holland and England, commencing at the early date of 1235 down to the most recent period.

The literature of the North is fully represented, as we might anticipate; nor are the productions of English and French authors scantily treated. The compiler of this catalogue has extended his researches beyond the lists of the publisher, and has shown his attention to the subject by introducing notices upon fish or the fisheries that have appeared at different times in periodicals and works upon geography, topography, or natural history. In this manner the ordinary limits of a catalogue have been exceeded, and the student can pursue his inquiries over a wide range of this branch of literature. Glancing over the pages, we notice the titles of many works that would furnish interesting, as well as instructive, reading. Our old companion "The Complete Angler; or, the Contemplative Man's Recreation," is not omitted, and, were an opportunity to present itself, we should be glad to learn what Sir W. Raleigh had to say upon the sea fisheries of England and Holland, which volume he presented to his unworthy King; nor have the efforts of the *Nautical* in this direction escaped the attention of M. Bosgoed. These few observations, we think, will be sufficient to indicate that the "*Bibliotheca Ichthyologica et Piscatoria*" deserves a place in all our larger libraries. A reference to its contents will astonish the reader at the extraordinary number of excellent works that treat upon the subject of the fisheries, and will show how much the attention of men has been given, in all ages, to the products of the sea.

SHIPBUILDING, 1875.

SAILING SHIPS.

Ports.	No. of Ships first six months.	No. of Ships added July to Nov. inclusive.	Gross Tonnage first six months.	Gross Ton. added July to Nov. inclusive.
Aberdeen ...	5	1	2,815	1,677
Barrow ...	5	1	4,695	1,385
Belfast ...	4	5	4,858	4,575
Bristol ...	—	—	—	—
Cowes ...	4	2	874	35
Dartmouth ...	18	9	1,568	812
Dundee ...	6	2	5,249	2,785
Faversham ...	1	2	89	69
Glasgow ...	29	36	81,267	32,637
Greenock ...	13	6	9,072	6,701
Hull ...	9	7	645	1,565
Jersey ...	9	6	818	485
Liverpool ...	12	16	6,747	9,817
London ...	8	11	858	2,785
Middlesbro' ...	1	2	182	745
Newcastle... ..	8	8	738	5,336
Plymouth ...	7	4	1,814	361
Port Glasgow	9	6	9,006	6,629
Portsmouth ...	8	2	881	288
Rochester... ..	6	2	282	92
Southampton ...	7	1	521	66
Stockton ...	2	2	2,594	2,610
Sunderland ...	28	28	20,684	24,800
Whitehaven ...	2	4	2,255	4,128
Workington ...	1	2	1,069	1,260
Yarmouth ...	5	18	145	1,225
Other Ports ...	96	79	18,077	9,306
Total	293	262	120,133	122,074

SHIPBUILDING, 1875.

STEAMSHIPS.

Ports.	No. of Ships first six months.	No. of Ships added July to Nov. inclusive.	Gross Tonnage first six months.	Gross Ton. added July to Nov. inclusive.
Glasgow ...	52	84	50,760	25,512
Greenock ...	11	10	13,998	8,406
Port Glasgow	18	13	8,033	5,607
Sunderland	12	16	15,522	16,043
Newcastle	21	19	24,433	18,190
North Shields	5	4	3,118	321
South Shields	8	10	3,095	2,494
Liverpool ...	5	8	4,127	6,345
Dundee ...	6	3	3,276	1,952
Hartlepool	11	2	12,399	2,739
Aberdeen ...	2	1	1,357	643
London ...	9	8	4,083	2,607
Belfast ...	—	2	—	648
Stockton	4	4	4,832	3,370
Kirkcaldy ...	—	—	—	—
Middlesbro'	8	3	8,657	2,829
Hull ...	1	3	3,110	4,063
Leith ...	—	1	—	72
Bo'ness ...	2	—	1,841	—
Whitehaven	1	—	232	—
Barrow ...	1	1	1,025	1,082
Whitby ...	4	1	4,602	1,008
Other Ports	17	13	1,906	3,576
Total	198	156	170,406	107,507

SHIPBUILDING, 1875.

SAILING SHIPS.

Ports.	No. of Ships	No. of Ships	Gross Tonnage	Gross Ton.
	1875.	1874.	1875.	1874.
Aberdeen ...	7	10	4,764	7,496
Banff ...	15	13	2,754	2,469
Barrow ...	6	4	6,020	2,492
Belfast ...	9	4	8,928	6,913
Bristol ...	—	7	—	706
Cowes ...	7	11	454	592
Dartmouth ...	27	24	2,380	2,005
Dundee ...	10	6	9,773	4,244
Faversham ...	6	9	233	921
Glasgow ...	69	35	67,126	40,458
Greenock ...	20	15	17,364	18,055
Grimsby ...	18	12	1,209	719
Hull ...	20	22	2,510	2,958
Jersey ...	15	13	1,253	847
Liverpool ...	30	25	18,700	19,126
London ...	11	34	2,775	2,479
Lowestoft ...	7	14	259	530
Middlesbro' ...	3	1	927	1,467
Newcastle ...	11	4	6,074	2,426
Plymouth ...	12	16	1,858	1,260
Port Glasgow	15	13	15,635	15,653
Portsmouth ...	6	6	711	691
Rochester ...	18	7	821	291
Rye ...	15	14	808	698
Southampton	8	11	587	697
South Shields	—	1	—	1,206
Stockton ...	4	3	5,204	6,038
Sunderland ...	57	50	46,087	43,745
Whitehaven ...	7	3	7,687	3,474
Workington ...	3	1	2,329	1,063
Yarmouth ...	25	20	1,465	1,052
Other Ports	139	162	19,601	18,185
Total ...	600	570	256,296	205,951

It will be seen that the building of Sailing Ships in the past year shows, both in number and tonnage, a considerable increase as compared with 1874. This does not look like steam superseding sail power just yet.

SHIPBUILDING, 1875.

STEAMSHIPS.

Ports.	No. of Ships		Gross Tonnage	
	1875.	1874.	1875.	1874.
Glasgow ...	95	95	90,097	135,428
Greenock ...	22	13	24,426	30,419
Port Glasgow	31	24	13,640	17,297
Sunderland	31	32	36,661	38,589
Newcastle	46	54	52,300	70,026
North Shields	10	24	3,507	9,207
South Shields	20	18	6,488	6,431
Liverpool ...	14	26	10,579	18,578
Dundee ...	10	5	5,910	6,289
Hartlepool	13	10	15,138	11,050
Aberdeen ...	3	7	2,000	4,947
London ...	17	16	6,690	6,469
Belfast ...	2	2	648	10,012
Stockton ...	8	8	8,202	11,538
Kirkcaldy	—	1	—	1,160
Middlesbro'	11	15	11,486	15,658
Hull ...	4	12	7,173	8,634
Leith ...	2	2	499	2,576
Bo'ness ...	3	1	3,008	1,344
Whitehaven	1	1	232	889
Barrow ...	2	9	2,107	12,551
Whitby ...	5	4	5,610	4,440
Other Ports	30	23	5,482	2,533
Total	380	402	311,883	426,065

The largest new steamer during the year was the *City of Berlin*, 5,491 gross tonnage, built at Greenock. It will be seen that there is a great falling off in 1875 as compared with 1874, both in regard to the number of steamers built and the total gross tonnage.

MR. PLIMSOLL ON DECK-LOADING.

IN the course of an address to his constituents, the honourable member for Derby has again taken the opportunity of making known to the country his views upon the practice of deck-loading. His speech on the occasion to which we refer was divided into two parts, one having reference to a speech made by Mr. Cavendish Bentinck at Whitehaven in August last, the other to the subject just mentioned. As occasion was taken in the explanation given relative to the points raised by Mr. Bentinck to advert rather strongly to the tone in which the *Nautical Magazine* has criticised some of the speaker's statements, it may not be out of place for us to offer one or two preliminary observations upon the remarks made by the honourable member with regard to ourselves.

It is perfectly true that we have from time to time spoken out somewhat freely upon the style that has been adopted for the discussion of questions relating to merchant shipping reforms. But plain speaking in this case has not been without ample justification. We doubt whether in the annals of Parliamentary legislation there is to be found a single instance in which exaggeration and sensational misrepresentation have been more rife than in this particular case. Unhappily it has been of little avail to expose the fabrications that have been raising shudders of virtuous horror from one end of the country to the other. No sooner has one set of fanciful creations been exploded than others have taken their place; yet no word of retractation from their authors has ever been heard. This it is that has excited the indignation of all honest men who are not blinded by their feelings. In vain have been all pleadings for deliberation. Murderers, villains, cold-blooded and mercenary wretches, have been the epithets flung at the heads of those who have dared to approach the subject without yielding to a fanatical enthusiasm. If in replying to men who have adopted this mode of furthering their views, we too have occasionally used forcible language, we can only plead the unusual exigencies of the case as our excuse. In discussing matters of public importance it is highly essential to avoid, as far as possible, all questions of a personal nature, but when men take upon themselves to head reforms, they should in the first place be careful how they accuse others of diabolical crimes, and systematic dishonesty. They should at least take the trouble to investigate the groundwork of the charges they make, and above all they should be ready either to substantiate or retract those charges when they are made. How far some of those who have styled themselves the sailor's friends have fulfilled these simple require-

ments, we must leave those who have watched the events of the last twelve months to judge for themselves.

There is reason to believe that the worst period is now past. The country is beginning to show signs of awakening to a sense of the actual state of the case. Attention has certainly been directed to the subject by all this sensational outcry, but the question is now being approached by men who will not be easily blinded by random and unfounded statements. People, generally, were taken by surprise by the discovery of what appeared to be a really gigantic wrong. Now they are beginning to see that what had been taken for a simple and unmitigated evil is, in reality, a vast and complex problem, by no means so easy of solution as would at first sight appear. This fact is now being made so clear that, we believe, the fiercest enthusiasm will be unable to maintain the subject in that false position into which it has recently been pushed.

We shall now make a few comments on Mr. Plimsoll's criticisms upon the repeal of the law against deck-loading. Judging from his speech, it must be allowed that he seems to have made out a strong case, his tone being moderate, and his views being apparently well backed up by impartial evidence throughout. No document could be more decided in tone than the report of the sub-committee appointed by Lloyd's, in 1874, to inquire into the results of the practice of deck-loading. To make the conclusions arrived at by this sub-committee more clear, it may be well briefly to recapitulate the facts of the case. In 1839 a law was passed prohibiting the carrying of timber as deck-cargo, and in 1862 this law was repealed. The committee examined the returns of the number of timber-laden vessels that sailed on autumn voyages during the ten years from 1850 to 1859, inclusive, and also during the ten years from 1863 to 1872, inclusive; thus taking ten years when deck-loads were forbidden, and ten years when they were allowed. They found the result to be that in the former period 135 seamen were drowned, while in the latter the number of lives lost was no less than 445. They then point out that if allowance be made for the increased number of vessels frequenting the North Atlantic during the latter period, and the consequently greater chance of escape, the loss of life would probably have been five times heavier during the deck-loading period than it was during the time when deck-cargoes were prohibited.

Having set forth these facts, Mr. Plimsoll proceeded to make some severe remarks upon the repeal of 1862. Because the law against deck-loads was struck off the Statute Book without debate, he appears to think the repeal was effected in a hole-and-corner kind of way. It is true that in moving for leave to introduce the Act of 1862, Mr. Milner Gibson stated—"It was also proposed to repeal certain clauses in the

Customs' Consolidation Act, prohibiting the carrying of deck-loads in timber ships, which were found to be totally nugatory and to interfere with the fair competition of the British with the foreign shipowner." Yet, in spite of this, Mr. Plimsoll states that, "no notice was given to the public of the intention to repeal the prohibition," and because no member took upon himself to question the facts expressed in Mr. Milner Gibson's words, a fraud was perpetrated on the nation by the repeal of the law against deck-cargoes. The only parallel to this which Mr. Plimsoll can conceive, "would be if the present Government were to re-enact the Corn Laws without a word of explanation to the House or country," in fact the change involved in the latter supposition would not be one whit more important than the change made by the Act of 1862. Mr. Plimsoll was able to pronounce this opinion on the authority of John Stuart Mill. It is unfortunate that he did not mention the chapter and verse of Mill's writings in which this view is expressed, for it is greatly to be feared that very few men will be able by their own unaided intellects to discover the slightest approach to a parallel, either in kind or importance, between the two cases. If a member of the present Government were to move for leave to bring in a bill to re-enact the Corn Laws because their repeal had been proved to be nugatory or injurious, and no person took the trouble to say a word against the proposed change, there would be some similarity of circumstances, although we cannot admit that even then there would be a parallel between the repeal of a law which had been found to be ineffectual, and the imposition of laws which are universally known to have had an injurious effect upon the community at large. Further than this, in the one case it was a withdrawal, while in the other it would be an imposition of restrictions, and this can hardly be held to constitute a parallel.

And now we come to the circumstances attending the perpetration of this great crime of 1862. To make these more clear, we shall supplement the references made by Mr. Plimsoll to the Report of the Royal Commission of 1875, by noticing one or two points in the same report that seem to have escaped his attention. He makes a great deal of the report of a Parliamentary Committee of 1848, which apparently shows with great clearness the advantages derived from the Act of 1839, but the Royal Commissioners of 1874-5 differ considerably from him as to the conclusions that are to be derived therefrom. The following shows their estimation of its worth. They say:—"In later years the statements have been more accurate, but without a careful analysis and consideration of other causes influencing the number of shipwrecks in the timber trade, any conclusion founded on a comparison of such returns is of little value." They then proceed to point out certain other figures in connection with the loss of life in the timber trade. They mention that

in 1871, when, of course, the law against deck-cargoes was no longer in existence, only 16 lives were lost in the timber trade, but in the following year, an unusually disastrous one for shipping, the total rose to 105. Now this latter number is "almost identical with the average number referred to by the Committee of 1843 in proof of the satisfactory result of the deck law during the three years 1840-1-2, the average for those years being 106; but no reference at all is made to the vast increase of the shipping trade since 1843. Figures are notoriously docile, but it would be difficult to find a more striking illustration of their obedience to opposing theories than in this case.

As a matter of fact, the repeal of 1862 was not effected without tolerably good reasons. When the Act of 1839 was passed, the navigation laws were still in existence, and legislation upon merchant shipping was consequently rendered effectual far more easily than at the present day. As long as British ships possessed an advantage over those of other countries, there was no serious risk to be apprehended from foreign competition by imposing regulations upon our Mercantile Marine, but when that advantage was removed the state of the case was completely changed. It is scarcely necessary to point out that the grand difficulty connected with such regulations at the present time consists in the unequal terms of competition they create, and it is, therefore, easy to see that when the navigation laws were repealed, the law against deck-cargoes at once began to operate under entirely new conditions. The navigation laws were abolished in 1850, and from that date the deck law began to be evaded. In order to meet their foreign competitors, English shipowners constructed large poops on deck, in which the timber might be stowed, and in this way they rendered their vessels more dangerous than they would have been with the timber so loaded that it could easily be thrown overboard. To make the change in the state of affairs still more complete, the differential duties on timber were repealed in 1860, thus placing English and foreign shipowners on a perfect level. Mr. Plimsoll omits to mention these highly important facts, although they are clearly laid down in the Report of the Royal Commissioners as being the causes which led to the repeal of 1862. He makes short work of the difficulty by suggesting that no ships carrying timber as deck-cargo should be allowed to enter English ports; but it is quite certain that we could not venture to carry out a regulation of this kind unless we were prepared to allow British vessels to be retaliated upon by other nations. To put such a rule into practice would be to involve ourselves in endless international difficulties, if not in something even worse. The operation of the navigation laws was so much felt by foreigners, that on more than one occasion retaliation was had resort to; and it was an intimation from Prussia, in 1823, that unless they were relaxed in favour of her ships,


heavy duties would be imposed in return on English vessels entering Prussian ports, which led to the introduction of the Reciprocity Acts of the reign of George IV. Of course these facts are well known to all who have studied the progress of Merchant Shipping Legislation; but as this is a question that is rapidly gaining popular attention, it may be well to mention them for the benefit of those whose knowledge of the subject is limited to the few carefully-selected facts that fervid orators may choose to set before them. Blue Books are not conveniently accessible, nor, indeed are they very attractive to the public generally; but theories built up from them are usually received with a large amount of credence, and it is, therefore, desirable that the public should be made acquainted, as far as possible, with the information they contain.

It is easy to wax virtuously indignant upon the subject of merchant shipping before a sympathising audience at an inland town. To array a few bare figures like those contained in the report of the sub-committee of Lloyd's, and then to relate two or three accounts of the horrible sufferings endured by the crews of water-logged vessels, is a certain way of gaining applause, and of calling forth cries of "Shame" from people whose knowledge of the timber-trade and its risks is limited to what they learn from the speeches of strong partisans.

In making these observations we by no means wish it to be inferred that we approve of the practice of carrying timber as deck-cargo. Deck-loading in the North Atlantic is undoubtedly attended with great risks—particularly during the winter months. But, at the same time, to prohibit such cargoes from being carried by English vessels would be highly questionable policy. To do so without first obtaining the co-operation of other nations would be merely to deprive ourselves of the timber trade, and would lead to no ultimate good whatever. Mr. Plimsoll appears to be under the impression that the Act of 1889 was repealed without rhyme or reason; but an examination of the Report of the Royal Commissioners of 1875 will show that this was very far from being the case.

MARINE INSURANCE.

STATEMENT OF THE LIVERPOOL SHIPOWNERS' ASSOCIATION.

“ NOWING that our trade has been conducted honourably and with due regard to the lives and property on board our ships, we have felt we could treat with indifference the imputations that have of late years been cast upon us by persons, well-meaning enough, though not conversant with the subject; but when statements, injurious to shipowners as a class, have been advanced, as has recently been done in Parliament, by gentlemen whose position and opinions have great weight with the House, it is no longer right to remain silent, but it becomes our duty to protest in the most decided manner against unjust imputations cast upon one of the most honourable and best conducted trades of the country. In saying this, we do not deny that there have been, and are, men in our body (as in any other trade) who disgrace it; but these exceptions are few and insufficient to afford ground or reason for stigmatising the whole body, or for introducing measures of a vexatious character.

“Sir Charles Adderley, in bringing in his Merchant Shipping Acts Amendment Bill, on 8th February, said:—‘The subject of marine insurance I believe to be at the root of the whole matter.’ And, on the 12th March, in the debate on this subject, introduced by Mr. Brassey, the several speakers used expressions tending to persuade the House that shipowners did not take care of the lives and property entrusted to them; that means should be devised to stimulate them to do so; that shipowners habitually over-insure; that such over-insurance is the cause of so much loss of life and property, and that a limit should be put on the insurance of ships. These views were again supported by the President of the Board of Trade. He said:—‘The question of marine insurance was at the very foundation of the object he had in hand in presenting to the House the Bill which he lately introduced, namely, the increased safety of the merchant service, and the preventing of reckless adventures in commerce at sea;’ and he further indicated that it was his intention to bring in a bill dealing with the question, and, judging from the other parts of his speech, it is evident what would be the general character of that Bill.

“In thus introducing such a bill, the President of the Board of Trade *prima facie* assumes, and bases his proposed bill and all its arguments on the assumption that shipowners, as a body, habitually over-insure.

“Now, 1st.—We dispute the statement that over-insurance is the main cause of loss of life and property at sea. It is proved that the largest proportion of losses arise from bad seamanship and navigation, and

which we can only hope to see reduced by an improvement in the character of our seamen ; most of the losses of steamers within the past year or two, involving serious loss of life, can be traced to causes that had nothing to do with matters of insurance ; and we believe it will be found that of the numerous small collier craft lost annually on the East Coast with such lamentable results as regards life (excepting those insured in mutual clubs, where the valuations are carefully looked after), very few are, or could be insured at Lloyd's or with companies.

" 2nd.—But we express our decided conviction that shipowners, as a body, do not habitually over-insure their ships. So far as the Liverpool shipowners are concerned—and they represent a very large proportion of the tonnage of the United Kingdom—we state emphatically they do not do so ; in fact, many of the wealthier and larger owners and companies take the entire, or a large portion of the risk themselves.

" 3rd.—This opinion is supported by the Liverpool Underwriters' Association, as will be shown in the appendix hereto, and also by Lord Eslington, one of the Royal Commissioners, who stated in the debate on the 12th March, that 'he had come to the conclusion that over-valuation was the small exception to the general rule.'

" We now give reasons why any law for limiting and controlling marine insurance would be injurious, harassing, and unworkable.

" 1st.—We object to be singled out to be hampered and harassed in our business, as no other trade is, or would submit to ; already the shipping interest is over-legislated, and under pains and penalties at every turn, and the risks owners now run are sufficiently serious, without the imposition of further vexatious restrictions. Present insurance policies do not fully protect the shipowner, as is generally supposed. In cases of collision, for instance, the owner is only protected to the extent of three-fourths damage to ship run into, to two-thirds his own damage (and then only if it amounts to an average), and no protection against claims for loss of life. Also, in cases of decks being swept it is rarely any part of cost of repairs can be recovered from underwriters ; but, even when such damage amounts to an average, the owner has to bear one-third of the cost, besides numerous other risks, all combined with a keen competition in carrying the maritime commerce of the world.

" 2nd.—We object to such a law, because it would be practically unworkable, and could not be justly carried out. If the valuations are to be those of the owner, then it would not alter the present system ; if they are not to be the valuations of the owner, and we assume this is what Sir Charles Adderley means, when he says,—'If there is to be a clear distinct law of insurance, there must be a definite estimate of value,'—then who is to value the ships, and on what principle will such valuations be made ? Vessels built the same year, and of the same

class at Lloyd's, will vary in actual intrinsic value several pounds per ton. Again, is it to be market value—what they would sell for? Now, in times of depression, vessels are sometimes sold at ruinously low prices, without regard to intrinsic value. Take an instance of how this would work in practice:—A few years ago iron sailing ships were built, costing £15 and £16 per ton; shortly after sailing tonnage became a drug in the market, and vessels of the highest class were sold at £9, £8, and even £7 per ton. Now, if an owner of moderate means had built one or two vessels at the time named, and was compelled by law to insure at £9 to £7 per ton, and happened to lose his ships, he would simply be ruined. Again, in two or three years after the period named, the cost of iron sailing ships rose to £16, £17, and up to £20 per ton. Would the valuations of the aforesaid ships, costing £15 and £16, reduced in 18 months to £9, £8, or £7, be raised again in three years after to £16 and £18 per ton? !!! Again, last year, many new iron ships cost £18 to £20 per ton; they could now be built at £16 to £17, and possibly in a very short time these vessels, costing £20, may be unsaleable at £12 to £14; these figures apply only to iron ships, but the case of wooden ships would be even more complicated and difficult to deal with. We think, on this point, we have said enough to show how impracticable such a law would be, and how unjust to the shipowner, if practicable.

“3rd.—We object to it on broad national grounds—if such a bill became law, none but capitalists and companies would own ships and conduct the carrying trade. Men of moderate means would be debarred from investing their capital in property that involved such risks. And when it is known that many of our largest and most eminent shipowners and shipowning companies began with small means, it would be a grievous misfortune to the country and its commerce, were shipowning enterprise checked, and the carrying trade made a monopoly in the hands of a few wealthy men and companies.

“4th.—It is against commercial policy to interfere with the course of trade, and protection is against the spirit of the times. Underwriters are an intelligent body of men, and do not require nor ask that they should be protected in their business; moreover, they object to low valuations of vessels, preferring a fair valuation, because cases of averages are so much more frequent than total losses, and it is these latter that mainly cause loss of life.

“Without any attempt to exhaust the subject, we cannot but think what has been thus cursorily and briefly stated will show—

“A.—That over-insurance has not the bearing on loss of life at sea that some appear to assume.

“B.—That shipowners do not habitually over-insure.

"C.—That shipowners and underwriters object to any interference with their mutual arrangements, and that it would be impolitic to interfere.

"D.—That the business of shipowning entails already sufficiently grave and serious risks ; and

"E.—That, if shipowners are to be further harassed by such legislation as is now proposed, shipowning, as a trade, would receive a check that would seriously affect the commerce of this country.

"Signed on behalf the Liverpool Shipowners' Association, W. ROME, Chairman, Liverpool, 12th April, 1875."

The foregoing statement deserves most careful and deferential consideration, not as a masterpiece of composition or argument, but as a simple statement of the whole of the owners of the sailing tonnage of Liverpool, for there were absent from the meeting only the firm of Bates and the firm of Brockelbank.

It seems to us, however, that the Liverpool sailing shipowners are a little too hasty in endeavouring to expound the nature of the Insurance Bill to be brought in next session by the President of the Board of Trade. For ourselves we have not yet heard of the existence of such a Bill. As far as we can gather from the statement above printed, it seems that the Liverpool sailing shipowners take it for granted that the Government will adopt Mr. Brassey's views for limiting assurance to, say, $\frac{1}{2}$ ths, $\frac{2}{3}$ ths, $\frac{3}{4}$ ths, or some fancy fraction of the value of the ship and possibly of her cargo and freight, and will also attempt in some way, not even hinted at by them, to control marine insurance. We certainly do not know the secrets of the Ministry nor of the President of the Board of Trade ; but judging from the recent utterances of the President, the evidence given before the Royal Commission on Unseaworthy Ships by the permanent officers of the Board of Trade and the report itself of the Royal Commissioners, we should have thought that Board would as soon have attempted to limit the orbit of the moon as to originate a proposal for limiting insurance to any fancy fraction of the ship's freight and cargo. The attempt in the one case would be as wise, as useful, and as successful as in the other ; but if such an experiment on the part of any member of Parliament be within the range of possibility, the Liverpool sailing shipowners are wise in their generation and in the interests of commerce to protest in time. Any attempt to settle by legislation what is "value" must end in failure. It is not possible to determine by statutory enactment what the value of any ship to any particular trader may be, nor is it even possible to lay down hard and fast rules for determining that value. The Liverpool statement gives some good reasons in support of this view, but if value before insurance is determined with so much difficulty,

we are led to ask, How is it possible, then, to establish value after a ship is lost? It is urged that it will certainly not be to the advantage of British shipping if a system be established by means of which the question of value can at any time be opened, probably not to be settled for a very long time—a system of benefit only to the underwriter, who will be enabled whenever he sees a chance of getting out of his liabilities to open up the question of value. The underwriter would, we presume, in any case, have to open up value nominally at his own cost; but if the underwriters were shown to have been mistaken the shipowner never could be repaid for his time lost and labour wasted in setting himself right. He might get his taxed costs, but that would not nearly recoup him, and he ought in such a case be able to claim compensation.

We can supplement the Liverpool illustrations by a few more. Suppose a large concern, owning, say, five steamers, which have cost, say, £120,000 each, total £600,000. Business is dull, but a shipowner more farseeing than others and with plenty of ready money, buys the five for the cost of one and a half, say, for £180,000, and lays out on them another £180,000. Trade revives, or the owner develops some new and remunerative service whereby he gets the ships all into paying work. They cost originally £600,000; they stand their present owner in £360,000, and say that owing to the price of labour and material he could not replace them for £750,000, what would be the value for insurance? Is it the £180,000 + £180,000 + interest during the time the ships were lying idle—10 per cent. deterioration + cost of subsequent repairs? Or is it the cost of replacement, £750,000—10 per cent. per annum deterioration + cost of repairs? Suppose, again, some of the ships were specially fitted for special work which is more than ordinarily lucrative, and that the ships could not be replaced and refitted until after the expiration of some months, or a year, it certainly would not be to the interest of the shipowner to lose his ships for the sake of recovering insurance; he may think it hard on him to say that he must not insure them according to their actual value to him at the time of their work, or that he shall not insure the profits anticipated, or that he shall not insure for such a sum as would cover the loss he would sustain by having to wait until he could build or purchase and fit another ship for the service. As a matter of fact, would an owner be indemnified if he could only recover by insurance the actual cost of the ship, plus the wages and costs he has paid down to the time of her loss, and minus 10 per cent. per annum for deterioration, without reference to her business or employment? Or must not her business and employment, and the loss of her services in that business or employment, be also taken into consideration?

The very common case of a joint "ownery" is another case. A

decides on building a ship, and he asks B, C, and others down to Z to become co-owners. They agree, and a contract is signed for, say, £25,000, the cost of the ship, on the 1st of January, 1870. The ship takes eighteen months to complete and fit out, and during this time the price of labour and material rises, say, 20 per cent. In the case of one of the co-owners for example, who stands at £2,000, he pays £500 on the contract being signed, and subsequently during the eighteen months he pays various sums at different times until he has completed the £2,000. Is his insurable interest to be £2,000 + interest at, say, 6 per cent. + increase of market value, 20 per cent. = £2,580? (to say nothing of profits that would arise as the vessel fulfils her mission), or is it to be only £2,000? or is he not to insure for increase value or for interest? Perhaps while the work of building is going on, labour and material go down in price £20 per cent., is his insurable interest in that case to be only £1,600, although he has paid £2,000 and obtained no interest? It is easy to see that the subject is as full of difficulties as it can be.

The principle that insurance is an indemnity must be taken as admitting that it may be sufficient to cover all losses occasioned by the wreck of a ship, and, therefore, that it ought to cover more than a sum sufficient to provide the owner with another similar ship. Whether freight or profits should be insurable by separate policies is an open question, but it is held by many persons that they ought to be insurable. There may be profits when a ship is lost, but by far the greater number of wrecks entail interruption to business and other losses and inconvenience far beyond anything that the mere market value of the hull, machinery, and equipments might cover.

Premiums of insurance are regulated for the most part by the risks of trade, and on sea, as on land, there are various degrees of risk. There are some premises on shore that certainly are not insurable, but it would be difficult to find a single ship afloat, doing a carrying business, that cannot be insured for a consideration in the matter of premiums. This being so, it is only logical that if the shipowner is to be hereafter rendered liable, in the event of his ship being wrecked, to have his case opened on a question of value, and if this is to be done solely on the ground (and no other has been alleged) that it will tend to the safety of the lives of sailors, then surely, by all that is just, an underwriter who demands and receives an exceptionally high premium, ought on the same ground to be subject to the consequences of re-opening the question in another way. It may be asked, is he not either making "unhallowed gains" by ignorantly lending himself to the exposure of seaman's lives; or is he not unmistakably admitting by the high premium he has demanded that he knows the risk the sailors are about to ignorantly incur, and

knowing it, is willing to and does barter with the shipowner, regardless of the very serious risk to the men.

It is too much the fashion now-a-days to separate the shipowning from the underwriting interests, whereas in the case of every ship insured they are both parties to the venture, both accessories before the fact, and therefore are a common interest ; and when an obviously dangerous ship is sent to sea, and is sent to sea because her loss is covered by insurance, for which the underwriter has received an unusually high premium, he, as well as the owner, ought to be put into court. Of course where there is concealment or other fraud on the part of the shipowner the case ought to be re-opened, and it can be re-opened now, as sundry recent instances have sufficiently proved ; but where there is no concealment or fraud between shipowner and underwriter, and the latter for undue consideration in the way of premium enables a shipowner to send a ship to sea at great risk to the crew, then it is difficult to see why he is not as guilty, and why he ought not to be subject to the same criminal law as the shipowner. At any rate, the underwriter ought in cases that are otherwise liable to dispute, either to have the ship surveyed before he underwrites her, or having foregone that privilege, he ought to be prevented from re-opening the case : if the risk is very great and the premium high, then the Board of Trade ought to step in as public prosecutor of both parties to the venture.

As regards unseaworthiness it would much simplify matters, if, on the owner offering a survey and the underwriter declining it, the underwriter should be prevented from raising such a question ever after ; and in respect of valuation, the shipowner might offer to have the ship valued by a competent and established valuer, and if the underwriter declined it then the question of value ought never to be raised again.

It seems to be popularly thought that all persons connected with ships do not know how to manage their business, and want protection everywhere. It will be curious to note whether in the next Session of Parliament the underwriter will be put in the same category as the shipowner. Hitherto the shipowner has been the only sufferer from over legislation, and has had to fight against popular sentiment singlehanded. Both the underwriters and the sailors have for some time had it all their own way, whilst the shipowner has been loaded with burdens, and we think that possibly both the underwriter and the sailor would be the better for a little more severe legislation and the shipowner for a little less. We do not anticipate that the Government will attempt to curtail the operations of underwriters, but the ways of private members are beyond prediction, and it is, we suppose, within the range of possibility that a statutory hard and fast value line may be attempted for

the underwriter, similar to the hard and fast load-line proposed to regulate the operations of the shipowner.

The fundamental principle of insurance is that it is a guarantee of indemnity to the assured, and is not intended to be and is not to be made a source of profit. If this principle can be emphasised more forcibly than at present it will be better for all parties, for the great body of shipowners especially, as they will not then live under the continual and unwarranted stigma that they over-insure for the sake of making gains by the loss of their property and crews. We entirely concur with the Liverpool sailing-shipowners, that over-insurance is the rare exception, but we will go further and say that where a ship is *over-insured*, or rather, *highly insured*, it is generally at the expressed wish of the underwriter, and for his benefit in the way of increased premium and greater security from average; and we also say that underwriters occasionally do insure ships (but not above their cost), such as are not fit, from their construction and design, to go to sea, and would not go if they were not insured.

We do not, however, suppose that Parliament is likely to do anything in the matter of insurance which will be opposed to the opinions of the Royal Commissioners, who, whilst in their final report evidently inclined to the belief that over-insurance is a source of mischief and of danger, did not recommend any alteration in the law. Such an alteration, they thought, would be inexpedient unless the whole system of marine insurance were "completely revised and amended, so as to restore marine insurance to what is its true character and only legitimate object—namely, a contract of indemnity, which should protect the assured from losses occasioned by events over which he has no control."

We have no fear that Parliament will, by hair-splitting legislation, drive the British shipowner to the adoption of the Continental practice of "honour policies," and are fully content to wait and watch. We do not know if an insurance bill is even contemplated, but if it be, we feel satisfied that it will aim not at preventing a liberal and legitimate indemnity, but at meeting admitted evils; and we also feel a confident hope that in attempting to cure a disease, or cut off an excrescence, care will be taken not to kill the patient in the experiment. A severe treatment of the subject by the authorised practitioner would, under certain circumstances, be worse than any application of a quack's nostrum.

THE HEALTH OF THE NAVY.

THE Statistical Report of the Health of the Navy for the year 1874, just issued from the department of Sir Alexander Armstrong, the Medical Director-General, presents the usual mass of information collated from the returns of the medical officers of the various ships, hospitals, and marine detachments, with remarks by Deputy-Inspector-General Mackay, under whose superintendence the Blue Book is compiled. Dr. Mackay reports that the sanitary condition of the service afloat in 1874 may, on the whole, be considered satisfactory, the increase in the invaliding rate being due to the exceptional character of the duties devolving on the West Coast of Africa squadron engaged in the Ashantee campaign, and the increase in the death-rate being attributable to an outbreak of yellow-fever on the south-east coast of America. Taken as a whole, the health of the Navy in 1874 bears a very favourable comparison with the average of the past eleven years. In the number of cases placed on the sick list, there was a reduction of 63·9 per 1,000; in the men invalided an increase of 5·0 per 1,000 (the result of the Ashantee war); while in the death-rate, which is of course the most important matter, there was a reduction of 1·5 as compared with the previous eleven years, the death-rate of 1874 being 9·4, or less than 10 men in every 1,000. The total force, corrected for time—or, in other words, the number of men estimated to be constantly serving during the year—was 44,530. Of these 50·32 per cent., or one-half, were between the ages of 15 and 25; 34·03, a little more than one-third, between 25 and 35; 12·53, about one-eighth, between 35 and 45; and 3·11 per cent. above 45 years of age. Of the whole number 48 in every 1,000 were sick daily, either from disease or injury. From the “age tables,” and the percentage tables calculated from them, it appears that the most prevalent diseases among the men and boys of all ages were those of the cellular and cutaneous system, including abscesses, ulcers, and all forms of skin disease, which caused one-fourth of the total number of cases entered on the lists. Wounds and injuries contributed one-fifth to the total number of cases and more than one-fourth to the total number of deaths. Diseases of the digestive system, including diarrhœa, dyspepsia, and hernia, caused one-sixth of the total cases, and diseases of the respiratory organs one-tenth, not, however, including phthisis or consumption, which is returned by itself, and which caused 0·41 per cent. of the cases. In the records of the Home station a very important table is given to show the result of the operation of the Contagious Diseases Acts, and, to enable a perfectly fair comparison to be made, the number of cases of the diseases against which those Acts

are more particularly directed is given for the three years, 1861-8 inclusive, before they came into operation, and this is followed by the figures for the succeeding years down to and inclusive of 1874. From this table it appears that while before the Acts were carried out at the home ports the cases of these diseases occurring in the naval force gave a ratio of 104 cases in every 1,000 men, the ratio in 1874 was only 48·6, or less than half; and so strongly is this evidence supported by the testimony of the medical officers of the various ships that Dr. Mackay says it is needless to give in detail their opinions on the working of the Act in its relation to the service, for "without exception they bear the highest testimony to the benefits derived from it, and advocate strongly its extension if possible." Typhoid fever gave a total of 46 cases on the whole force, and the remarks on the various stations generally show it to have been traceable to local causes, as, for instance, in the Mediterranean, where it was mainly contracted at Malta. It is satisfactory to note that the defective state of the sanitary arrangements in Malta harbour, to which attention has been called in these reports for many years past, is at last likely to be remedied, for Dr. Mackay states that "the general and comprehensive scheme of sewerage of the principal towns surrounding Malta harbour, which has been submitted to and approved by Government, is to be carried into effect at once, and will doubtless prove an inestimable boon to the island as well as to the naval force on the station of which Malta harbour is the head-quarters." Appended to the Blue Book are the annual reports on the naval hospitals, dockyards, and marine detachments which were first added to the volume some years ago by Sir Alexander Armstrong, and there are also several important papers contributed by medical officers, including a report on the physical geography and climatology of the Fiji islands.

MARITIME LAW.

TIME POLICY.—WARRANTY OF SEAWORTHINESS.—DUDGEON (SHIP-OWNER) v. PEMBROKE (UNDERWRITER).—THE CASE OF THE "FRANCES."—At the sittings for appeals from the Court of Queen's Bench, on the 21st December, 1875, the Court held a sitting for the purpose of giving judgment on an appeal from the Court of Queen's Bench, argued in the old Court of Error in the Exchequer Chamber, the jurisdiction in which is transferred to the new Court of Appeal.

This case is one of the most important decided for many years, and for the reason that it dispels the idea so long prevalent that in time

policies a warranty of the seaworthiness of the ship is not implied. If the decision now given stands, one of the arguments against the existing law of marine insurance falls through. The whole question as to the power of shipowners to recover on insurances of unseaworthy vessels is exhaustively discussed and probably settled. The question had arisen thus:—In January, 1873, the plaintiff insured the *Frances*, a ship then in the port of London, and under his control, for a year from the 24th of January, 1873, to the 23rd of January, 1874, “lost or not lost, as and from and for and during 12 months, from, &c., in port and at sea, of and in the ship *Frances*, beginning the adventure, on goods, &c., on the loading thereof on board ship;” and the perils insured against being described as “the perils of and through the seas.” The ship sailed on the 3rd of February for Gothenburg, and on the 7th of February arrived. She sailed again for London on the 11th February, met with rough weather, leaked, and became water-logged and unmanageable, and on the 14th stranded on the coast of Yorkshire and became a total loss. The underwriters resisting the claim on the policy, this action was brought, and they pleaded two principal defences—that the ship was not lost through the perils of the seas, and also that the shipowner (the plaintiff), knowing that the ship was unseaworthy, sent her to sea in that condition, and that she was lost by reason of such unseaworthiness, and not otherwise. The case was tried at Guildhall, before Mr. Justice Blackburn, and at the close of the trial, which took up eight days, the learned Judge left to the jury several distinct questions, on which they found that there was no wilful concealment of anything material, but they could not agree as to whether the ship was seaworthy, or whether, if not so, the unseaworthiness was the cause of loss, though they found that if it was so the plaintiff (the shipowner) did not know of it. Upon these findings the learned Judge directed the verdict for the plaintiff (the shipowner), and the defendants (the underwriters) applied to the Court of Queen’s Bench to set aside the verdict, on the ground that the findings in favour of the plaintiff were against the evidence; but the Court upheld the verdict for the plaintiff on the findings, and refused a new trial, though, in doing so, they said it must be assumed that the findings were in favour of the defendants (the underwriters) on the two points on which the jury had been unable to agree. From that judgment the defendants appealed, on the ground that, taking these findings as in their favour, they were entitled to judgment. The case was argued in the Court of Error, constituted of Lord Coleridge, Mr. Justice Brett, Baron Cleasby, Mr. Justice Grove, Baron Pollock, and Baron Amphlett. The Court took time to consider their judgment, and were now divided in opinion, four of them—Lord Coleridge, Baron Cleasby, Baron Pollock, and Mr. Justice Grove—being in favour of the underwriters, and two—Mr. Justice Brett and

Baron Amphlett—in favour of the shipowner ; so that the judgment of the Court of Queen's Bench was reversed, and the judgment of the Court is for the defendants (the underwriters). The broad question raised was whether, if a shipowner sends a ship to sea in an unseaworthy state and it is lost, partly by reason of unseaworthiness, he can recover on his insurances ; and the majority of the Court of Error have held in the result, though not on the same grounds, that he cannot.

Baron Cleasby first delivered the judgment of himself and Baron Pollock in favour of the defendants. The real question, he said, is whether, on a time policy, when the insurance is effected and the risk attaches while the ship is in port in the hands of its owner, and she starts in an unseaworthy state and is lost in consequence of it, the owner can recover on her insurance. For, in considering the question, it is to be taken that the questions on which the jury were unable to agree were found in favour of the defendants. The particular question which has arisen is one which has never been decided, and must be considered upon principle. But the importance of requiring the shipowner to have his ship in a seaworthy state at the time the risk commences has been laid down by great Judges as to time policies as well as to voyage policies (as to which it is settled law), and was so laid down by Lord Eldon. " Unless," they have said, " the owner is bound to take care that the ship is seaworthy, most mischievous consequences must follow, for the effect of insurances will be to render those interested careless as to the condition or safety of the ship." And Lord St. Leonards, in a case in the House of Lords, said that on these grounds he thought there was an implied condition of seaworthiness as well on a time policy as on a voyage policy. Having regard to these considerations, it would be most undesirable to relieve shipowners from this obligation of seeing to the seaworthiness of their vessels. If the shipowner knows he is under that obligation he will take care to have a good ship ; but if it depends upon uncertain conclusions as to his knowledge, he will do as little as he can, to save appearances, and will take his chance. The authorities are sufficient to satisfy me that if a ship is unseaworthy at the commencement of the voyage, and the loss arises in consequence, the owner must bear the loss. It follows that in the present case the findings assumed amount to a verdict for the defendants ; and that the judgment of the Court ought to be in their favour on that ground, and also because it results that the loss did not arise from the perils of the seas.

Mr. Justice Brett and Baron Amphlett concurred in a judgment (which was read by Lord Coleridge) to the contrary effect—in favour of the shipowner, the plaintiff. The case, they said, is as though the jury had found that the ship was unseaworthy when she left London, and continued so until she was lost, but that this was unknown to the

owner, and that she was lost partly in consequence of unseaworthiness, as a remote cause, in this sense, that she would not have been lost but for her unseaworthiness; and the question is whether, on these facts, the verdict ought to be entered for the defendants. The questions arising appear to be—1. Whether there is any implied warranty of seaworthiness on a time policy, and we think there is not; 2. Whether there is any implied warranty that the ship is seaworthy at any other time than the commencement of the risk, or voyage during the period insured, and we think there is not; 3. Whether there is any stipulation that if the ship is unseaworthy the underwriters shall not be liable for any losses which would not have happened if the ship had been seaworthy, and we think there was not; 4. Was the evidence conclusive that the vessel was lost by perils of the seas? and we think that it was; 5. Are the facts to be assumed in the case, that the ship was unseaworthy when she left London, and would not have been lost if she had been seaworthy, sufficient to entitle the defendants to the verdict? and we think they are not. There is no warranty of seaworthiness in a time policy as there is in a voyage policy, for seaworthiness varies with the nature of the voyage, and the voyage or voyages are unknown at the time of the insurance. If the ship is lost by unseaworthiness alone, without the happening of any of the perils insured against, then, indeed, the ship is not lost by the perils of the seas, and the underwriters are not liable, for the ship is then lost solely through its own inherent vice. But in such a case as the present, where there were perils of the seas which were the proximate cause of the loss, the unseaworthiness does not relieve the underwriters. It is a wrongful thing, no doubt, to send a ship to sea knowing it to be unseaworthy; but if the owner does not know it, where is the wrongfulness? Here the jury have negatived the shipowner's knowledge of the unseaworthiness, and it was not the immediate or proximate cause of the loss; we think, therefore, that there was no defence, and that the judgment of the Court was right, and ought to be affirmed.

Lord Coleridge then proceeded to read his own judgment, in which, he said, Mr. Justice Grove, as well as Baron Cleasby and Baron Pollock, substantially and in the result, concurred in favour of the defendants, the main difference of his Lordship's judgment being that he held broadly and decidedly that on an insurance of a ship for a certain time as well as for a certain voyage there is an implied warranty of seaworthiness. "The jury," said his Lordship, "must be taken to have found that the ship was unseaworthy, and that the unseaworthiness contributed to the loss; but the judgment of the Court of Queen's Bench proceeded on the ground that, knowledge of unseaworthiness being negatived, and the unseaworthiness not being the sole or direct cause of loss, the defence was

not sustained on either ground. It is manifest that the question at once arises—is there in such a policy as this no implied warranty of seaworthiness? As to this, it appears that though there are *dicta* which assume that in such a case there is no implied warranty of seaworthiness, yet it has never been judicially decided. It has been, indeed, assumed by text-writers, and has been laid down by some English judges, that in a time policy as in a voyage policy there was such an implied warranty. The view was that by the mere fact of effecting the insurance the owner warranted that there was a ship fit to be insured, and it was laid down in particular that if the time policy was effected on a ship about to sail from a home port there was an implied warranty. Then came a case of ‘*Small v. Gibson*,’ which went to the House of Lords, in which it was held that in a time policy effected when the ship is at sea there is no implied warranty; but the judges and law Lords did not agree as to whether in time policies in general there was such a warranty; Lord St. Leonards, with some of the judges, thought that there was; and in a later case in the Court of Error the point did not arise. The question, therefore, whether on such policies as this there is such a warranty is still open, and the American authorities, without exception, hold that there is such a warranty, and that there is no difference in this respect between a time policy on a ship then in a port and to be employed on a voyage and a voyage policy, but that the difference is only when the ship is at sea. In the present case the policy is, in fact, a voyage policy, limited to a particular time; and the reasons given for implying a warranty of seaworthiness in voyage policies apply with equal strength to such voyage as the present. The main reason given for not implying a warranty in the case of a ship at sea—viz., that the shipowner could not know the state of the ship at the time of the insurance—certainly does not apply. I confess to a strong feeling in favour of the older view of the law, except so far as it has been varied by authority. It seems to me to be wiser and better, to tend more to honesty of dealing and against gambling and fraud in insurance transactions, to extend, as far as may be, rather than to contract the doctrine of implied warranty of seaworthiness at the time of the commencement of the risk. I am, therefore, prepared to hold that in this case there was an implied warranty of seaworthiness; and on this ground I am of opinion that the judgment of the Court below was wrong, and should have been for the defendants. But, as the case may go further, and the opinion I have expressed is at variance with *dicta* of great weight, it is proper to consider also the question whether the findings as to the cause of the loss are sufficient; and whether, where the loss is proved to be by one of the perils insured against, even though the ship was unseaworthy when she started, the underwriters

are liable. Now, as to this, the jury found that the unseaworthiness was one of the concurrent existing perils at the time of the loss, and they were not directed to, and did not, find what was the efficient predominating peril at the time of loss. Yet it seems that in a case such as this the verdict would depend upon what the jury found as to this matter; and if they had found that the efficient predominating peril was the unseaworthiness, then the verdict must have been for the underwriters. They do not insure against any inherent vice of the vessel, nor against ordinary sea perils, and by this want of power the loss was caused. It is none the less a cause of loss even though in such a policy there was no warranty of seaworthiness at the beginning of the risk. In truth, in this case there were two concurrent causes of the loss—one a peril insured against, the other a peril not insured against—*i.e.*, inability to encounter ordinary perils; and the jury ought to have found which of them was the real cause of the loss, and on this question the owners' knowledge of the unseaworthiness would be immaterial. On this ground, therefore, as well as on the other, I think the judgment was wrong; and, as four Judges concur with me in the result arrived at, the judgment of the Queen's Bench will be reversed, and the judgment of this Court will be for the defendants."

THE LOSS OF THE BRIGANTINE "SOL."

A great deal has been said about cases in which a shipowner who is a Justice of the Peace, may, on inquiring into the loss of a ship, appear to be in favour of the shipowner. We do not think that any such a charge can with justice be set up in this case; but, unfortunately, such is the excited state of public opinion, that fact and reason are sometimes set aside. We reproduce the case of the *Sol* as an interesting instance of the loss of one of the British ships recently transferred to the newly-discovered Republic, or Port of Aroa, to which we referred in our November number. Whether the justices or the assessors are right in their opposite judgments, is a point in which even "humanitarians" may differ.

Report of an Inquiry into the abandonment and loss of the brigantine *Sol*, of Aroa (Uruguay), in the North Sea, on the 5th of October, 1875, held at the Police Court, Sunderland, before Joseph Norman Wilson and Francis Ritson, Justices of the Peace, assisted by Captain Forster, R.N., and Mr. W. H. Turner, Principal Shipwright Surveyor to the Board of Trade, Nautical Assessors.

The vessel was a brigantine of 192 tons register, built of wood at Prince Edward Island in 1856, and was formerly named the *Melona*, of Sunderland. On the 16th of March last, when lying in the Port of Sun-

derland, and half laden with coals, Mr. E. Monger, Board of Trade Surveyor, went on board and held a partial survey, and found certain defects in the hull and rigging of this vessel, not amounting, in his opinion, to unseaworthiness; and he then informed a person on board, who stated he was the owner, that on the vessel's return from her intended voyage, he would complete his survey. The vessel completed her loading and sailed for London, and whilst at that Port in April last her name and nationality appear to have been changed from *Melona*, of Sunderland, to that of the *Sol*, of Arca (Uruguay), by painting out on the bows and stern of the vessel the former and substituting the latter. No *bonâ fide* sale appears to have taken place. The same master continued in charge, and the owners, or one of them, appears to have constituted himself as agent to the supposed Uruguayan owners. The British register was closed, and an Uruguayan flag and a measure brief obtained, but no foreign register or any other papers to indicate her nationality. The flag named was blue, with a white bar running diagonally across from the lower part next the mast to the upper part. It was never exhibited until hoisted as a signal of distress, shortly before the abandonment took place. After the questionable change of nationality the vessel made several coasting voyages, and visited Hartlepool and Seaham. In September last she was at Sunderland, and there loaded a cargo of coals for Rotterdam, and sailed on the 1st day of October last. The weather was moderate, and nothing of importance occurred until midnight of Oct. 4, when they were about 50 miles S.S.E. from the Newarp. The wind, then at W.S.W., increased to a gale, and the sea increased, and the ship made a good deal of water. Sail was reduced, and about 8 a.m., on the morning of the 5th day of October, ship rolling heavily, the foremast went over the side, with all attached to it; the main rigging was also carried away, and the mast sprung; the wreck of the spars was cut adrift as soon as possible, but not before it was supposed they had damaged and holed the ship, for the water increased in her in a very short time to four feet. Signals of distress were displayed, and a Belgian pilot vessel bore down, and at 9 a.m. took the crew out of her; at that time there was five feet of water in the hold. The master and crew were landed the same night at Flushing, where, on the following morning, the master entered a protest with the British Consul. The Board of Trade surveyor (Mr. E. Monger) states that he saw the vessel several times after the change of her nationality, and noticed her dilapidated appearance, from being dirty and want of paint, but never again boarded her after holding partial survey on the 16th of March last. Although the colourable change of nationality was made for the purpose of evading the Board of Trade supervision and survey, it did not cause or contribute to the loss, for

there is no evidence of the unseaworthiness of this vessel. It was stated that she was uninsured, and the owners could derive no possible gain by her loss. No lives were lost.—Sunderland, Nov. 5, 1875.—J. N. WILSON. FRANCIS RITSON. We do not concur,—Geo. H. FORSTER. W. H. TURNER.

REPORT OF THE ASSESSORS.—The *Melona*, official number 39,197, alias *Sol*, was a brigantine, built of wood, at Prince Edward Island, in the year 1856, and of 192 78-100 tons register. In March, 1875, she was owned by Fountain H. G. Neale, master mariner of Seaham, and John M'Keeth, of Sunderland, grocer. The vessel hailed from the latter port and was managed by M'Keeth. It appears that during this month Mr. Monger, Board of Trade Surveyor at Sunderland, whilst going his rounds, visited the *Melona*, but as the vessel was partly laden with coals, he was unable to ascertain the condition of the hold; he, however, observed that the deck hook, one hawse timber, and two wood lodging knees were rotten, and one beam-end was defective. He also noticed that the upper deck amidships had dropped below the regular sheer, and in other parts it had started from the beams. He tested the forerigging, and pronounced it as being "old and bad." During his stay on board the vessel Mr. Neale appeared, and stated that he was the owner, whereupon Mr. Monger informed him of the various defects that existed, and stated that when the vessel returned to Sunderland he would complete the survey. Shortly afterwards the vessel sailed for London, and the owners closed the British register, stating that she was sold to a foreigner. While the vessel was in London, the master, Edward Norton, who held no certificate, received orders from Mr. John M'Keeth, jun., to paint out the vessel's name *Melona*, of Sunderland, and to substitute *Sol*, of Aroa. When the name was changed, the master was paid the balance of wages due for the *Melona*, and re-engaged for the *Sol*. This having been accomplished, he went to a public-house in Lower Thames Street, and there engaged four seamen; these persons signed the so-called articles of agreement to sail in the *Sol* on her coasting voyage; the mate, however, who had sailed in her as the *Melona*, continued in her as the *Sol*, carrying out the agreement signed in the former name. The crew having been thus shipped, Mr. John M'Keeth, jun., son of the owner of the *Melona*, represented himself to be the agent for some unknown owner of the *Sol*, and continued to conduct the business of the vessel in the same manner as he had done when she was the *Melona*. He also delivered to the master a blue flag, bearing on it a white diagonal stripe, said to be the national flag of Aroa. The master stated in evidence "that no national papers of any kind had been furnished him; that he neither knew the name of the owner, nor where he resided, and although the vessel hailed from Aroa, he did not know where

that port was situated, or did he know that there was such a place in the world," and there can be no doubt that no transfer of the vessel ever took place. The Sunderland clearance, dated October, 1875, was before the Court, in which the master described Aroa as a port in Uruguay; but on referring to the Admiralty charts no such place or port of Aroa could be found in Uruguay. There is, however, a place called Aroa in lat. $10^{\circ} 33' N.$, long. $68^{\circ} 40' W.$, being within the Republic of Colombia. The master having shipped his crew, and received his flag of Aroa, sailed from London for Hartlepool, thence back to London, from whence she sailed for Seaham and returned to London; she again sailed from London to Sunderland. During these several voyages, which occupied about seven months, namely, from March to October, it is concluded that she entered and cleared at the Custom Houses of the forenamed ports as the *Sol*, of Aroa. This act would appear to us to be a direct violation of the Merchant Shipping Act, 1854, section 103, sub-section 2. On October 1, this vessel, having received one new foreshroud and new foretopmast rigging, with 800 tons of coals, sailed from Sunderland, bound for Rotterdam, her draught of water being 12 feet forward and 18 feet aft. Nothing of importance occurred during the voyage until about midnight on the 4th instant, when the vessel, being under single-reefed sails, with her head S.S.E., and wind W.S.W., began to make water, and from thence until 8 a.m. on the 5th inst. all hands were at the pumps. Previous to this, in moderate weather, she required to be pumped for 20 minutes every two hours. At 8 a.m., the vessel being under jib, foretopmaststaysail, reefed upper topsail, lower topsail, foresail, mainstaysail, and a single reefed mainsail, with the tack up, the master states that there was a gale of wind blowing, and that this large quantity of sail was carried to enable the vessel to reach a port. The mate, however, stated that the vessel had not too much sail for the state of the weather, while Lawrence, an experienced seaman, said that the weather was such as would have allowed the vessel to have carried all sail. There was, however, a beam sea, and this deeply-laden vessel rolled heavily. In one of these rolls the starboard rigging gave way, and the foremast broke short off at about 18 inches above the deck, springing the mainmast, and carrying away the starboard mainrigging. When the mast fell to leeward it made a hole through the side of the vessel, and in a very short time there were four feet of water in the hold. The wreck was cut away, and at 9 a.m. a Belgian pilot-cutter hove in sight, and sent her boat, which rescued the crew of the sinking vessel, and landed them safely at Flushing. At the time of the abandonment the Schouwen Light bore S.E. by S. 20 miles. When the master and crew arrived at Flushing, the master reported the loss of the vessel to the British Consul, and the next day inquired for the Consul of Aroa, but could find no such person. The

crew were consequently sent to Sunderland by the British Consul. It is worthy of notice that the flag of Aroa was never used until hoisted as a flag of distress, when the vessel was sinking. Having carefully considered all the circumstances connected with the loss of the vessel, we are of opinion that no blame attaches to the master or any of the crew. The loss of this vessel is solely to be attributed to the defective state of her equipment, in consequence of which she was unable to contend with the ordinary perils of the sea.—Dated at Sunderland this 5th day of November, 1875.—W. H. TURNER, Shipwright Assessor ; GEO. H. FORSTER, Nautical Assessor.

OVERBOARD.—Mr. Arthur E. Barlow, commander of the Peninsular and Oriental Company's steamship *Nizam*, writes to the *Times* from Suez :—" At a time when all means and appliances for saving life at sea are being so freely discussed, I send you the following account of an incident which occurred on our homeward passage from Calcutta. Should you think it of sufficient interest, and as a means of making known a most useful and simple invention, I shall be glad if you will give it space in your valuable journal :—November 5, 10.20 p.m.—In the Bay of Bengal, the night being dark and squally, and raining heavily, one of the crew fell overboard, the vessel steaming at the time 11 knots an hour. The life-buoy, with Holmes's patent storm-signal attached, was immediately let go, and the engines stopped and reversed until the vessel was close to the buoy, the signal light attached to which was burning brilliantly. A boat was then lowered, and the man picked up, the whole stoppage having only occupied twenty-five minutes. During twenty-five years' experience at sea it has been my misfortune to see several men fall overboard at night, and I have never seen one saved until in the case I have just related, when, had it not been for the above-mentioned apparatus, we should, in all probability, have been unable to find the man, and several hours would have been lost in searching for him. In all Her Majesty's ships, life-buoys, with fuses at night, are carried, but they are expensive, somewhat cumbersome, and require constant care and attention—reasons which will prevent them from ever being generally adopted in the merchant service. Holmes's invention I consider satisfactorily meets all the objections to the Navy pattern life-buoy."

MONTHLY ABSTRACT OF NAUTICAL NOTICES.

No.	PLACE.	SUBJECT.
19	NORTH SEA—Schelde River—East Gat	Establishment of Leading Light.
20	NORTH SEA—Schelde River—Zijpe	Alteration in Lights.
21	NORTH SEA—Zuider Zee—Noordzeehaven	Intended Establishment of Lights.
22	UNITED STATES—Delaware River—Cross Ledge Shoal	Establishment of a Light.
23	AFRICA—West Coast—Gambia River	Buoyage of the River.
24	NORTH SEA—Netherlands—Scheveningen	Exhibition of New Light.
25	JAPAN—Yedo Gulf—Joka Sima	Alteration in Light.
26	ST. LAWRENCE RIVER—Origneaux Point	Establishment of a Light.
27	GULF OF ST. LAWRENCE—Chaleur Bay—Miscoon Island	Establishment of a Fog-Signal.
28	GULF OF ST. LAWRENCE—Tracadie Gully	Establishment of a Leading Light.
29	GULF OF ST. LAWRENCE—Tabisintac Gully	Establishment of a Leading Light.
30	GULF OF ST. LAWRENCE—Neguac Gully	Establishment of a Leading Light.
31	GULF OF ST. LAWRENCE—Shediac Harbour	Establishment of Leading Lights.
32	BASS STRAIT—King Island—East Coast	Reported Sunken Rock.
33	CAPE BRETON ISLAND—Bras D'Or Lake—Kidston Island	Establishment of a Light.
34	NOVA SCOTIA—St. Mary Bay—Meteghan River	Establishment of a Light.
35	BAY OF FUNDY—Petit-Coudiac River—Hillsborough	Establishment of a Light.
36	BAY OF FUNDY—Passamaquoddy Bay—Port St. Andrew	Establishment of a Light.
37	UNITED STATES—Delaware River—Schuylkill River	Establishment of Leading Lights.
38	PORTUGAL—Tagus River entrance	Reported Shoal off North Channel.
39	FRANCE—West Coast—Sudre River	Establishment of a Light.

NAUTICAL NOTICES.

19.—NORTH SEA.—*Schelde River*.—*East Gat*.—A fixed white light will be exhibited to the northward of West Kapelle light, Walcheren island, the two lights in line forming a leading mark from the Steendeept to the East Gat. A small light will also be exhibited near Domberg to mark the termination of these leading lights, or where they must be abandoned on entering the East Gat passage.

20.—NORTH SEA.—*Schelde River*.—*Zijpe*.—The following alteration has been made in the lights exhibited at Zijpe, near Bruinisse, east end of Duiveland. The southern light has been discontinued, and the

northern light has been changed to a *fixed white* light with a strip of *red* light to lead clear of the white buoys on the western end of the Noord-platen. The light is elevated 26 feet above high water.

21.—NORTH SEA.—*Zuider Zee*.—*Noordzeehaven*.—As soon as the harbour works are sufficiently advanced, two leading lights will be exhibited for entering Noordzeehaven, and when exhibited the lights at Egmond-aan Zee will be altered in order to avoid confusion.

22.—UNITED STATES.—*Delaware River*.—*Cross Ledge Shoal*.—A light is now exhibited from a lighthouse recently erected on Cross Ledge shoal, about half a mile within the southern extremity of the shoal. The light is a *fixed white* light, varied by *flashes* every quarter of a minute of the fourth order, it is elevated 51 feet above high water, and should be seen 12 miles. Position, lat. $39^{\circ} 9' 30''$ N., long. $75^{\circ} 14' 30''$ W. The light-vessel which heretofore marked the Cross Ledge shoal has been withdrawn.

23.—AFRICA.—*West Coast*.—*Gambia River*.—The following information relating to the buoyage of the entrance of Gambia river has been received. Fairway buoy is *chequered black and white*, surmounted by a white cage, and lies in $4\frac{3}{4}$ fathoms, with Cape St. Mary (centre of red cliff) bearing S.S.E. $\frac{3}{4}$ E., distant $9\frac{1}{2}$ miles; Middle buoy, E. by S. $\frac{3}{4}$ S., $5\frac{1}{2}$ miles. Northern or Red Bank buoy is *red*, surmounted by a *black cage*, and lies in $5\frac{1}{2}$ fathoms, with Cape St. Mary bearing S. by E., distant 13 miles; Fairway buoy, S.S.W. $\frac{1}{2}$ W., distant $5\frac{1}{2}$ miles. Middle buoy, an additional buoy, painted *red*, and surmounted by a *black cage*, has been moored in $4\frac{3}{4}$ fathoms, nearly midway between Fairway and African Knoll buoys, with Cape St. Mary bearing S. $\frac{1}{2}$ W., distant $5\frac{3}{4}$ miles; and African Knoll buoy, E. by S. $\frac{3}{4}$ S., $6\frac{1}{4}$ miles. African Knoll buoy is *black*, surmounted by a *cage*, and lies one cable off the north-west part of the African Knoll in 5 fathoms, with Cape St. Mary bearing S.W. by W. $\frac{1}{2}$ W.; the flagstaff at the north-east extreme of Bathurst S. $\frac{1}{4}$ W., distant $7\frac{1}{2}$ miles. The small white buoy which formerly marked the middle ground southward of the African Knoll has been removed.

24.—NORTH SEA.—*Netherlands*.—*Schereningen*.—With reference to Nautical Notices on the intended exhibition of a new light at Scheveningen, the light therein referred to is now exhibited. The light is a *revolving red and white* light, showing a flash alternately every half minute of the second order, elevated 157 feet above high water, and should be seen 18 miles. The tower is built of iron, and painted dark brown. Position, lat. $52^{\circ} 6' 20''$ N., long. $4^{\circ} 16' 10''$ E. The temporary light has been discontinued.

25.—JAPAN.—*Yedo Gulf*.—*Joka Sima*.—The light has been changed from a *fixed white* light to a *fixed green* light, and would be visible over

an arc of 309° , or between the bearings of N.W. $\frac{1}{2}$ W. through, east to W. by S.

26.—ST. LAWRENCE RIVER.—*Origneaux Point*.—A light is now exhibited from a lighthouse on St. Denis pier, Origneaux point, south shore of River St. Lawrence. The light is a *fixed red* light, elevated 34 feet above high water, and should be seen 8 miles. The tower is a square wooden building, 20 feet high, painted white. Position, lat. $47^\circ 29' 40''$ N., long. $70^\circ 1' 45''$ W.

27.—GULF OF ST. LAWRENCE.—*Chaleur Bay*.—*Miscou Island*.—A steam fog-whistle has been established near the lighthouse on Miscou island, entrance of Chaleur bay. In thick and foggy weather and snow storms the bell will be sounded for *five seconds*, at intervals of *twenty-five seconds*.

28.—GULF OF ST. LAWRENCE.—*New Brunswick*.—*Tracadie Gully*.—A *fixed white* leading light is now exhibited on the north side of Tracadie south gully, which when kept in line with Tracadie light, marks the channel leading into the harbour.

29.—GULF OF ST. LAWRENCE.—*New Brunswick*.—*Tabisintac Gully*.—A *fixed white* leading light is now exhibited on Crab island, Tabisintac gully, which when kept in line with the *red* light of Tabisintac is a guide to small vessels and boats entering into the gully.

30.—GULF OF ST. LAWRENCE.—*New Brunswick*.—*Neguac Gully*.—A *fixed white* leading light is now exhibited in front of the lighthouse in Neguac gully, elevated 27 feet above high water. This light when in line with Neguac gully light marks the channel for small vessels entering the harbour.

31.—GULF OF ST. LAWRENCE.—*New Brunswick*.—*Shediac Harbour*.—Two *fixed white* leading lights, elevated respectively 15 and 25 feet above high water, are now exhibited at the extremity of the wharves at Chéne point, Shediac harbour.

Note.—Vessels approaching Shediac harbour during the night should, when to the southward of Zephyr and Middle rocks, stand to the westward until the two leading lights on Shediac island are in line; these must be kept in line until the new lights on Chéne wharves are in one, when they must be steered for.

32.—BASS STRAIT.—*King Island*.—*East Coast*.—On inquiry into the cause of the wreck of the barque *Flying Squirrel* off the east coast of King island, Bass strait, it was stated that a sunken rock existed about 5 miles from the shore. This danger (*Squirrel rock*) is reported to extend about 100 yards in a north and south direction, to be 30 yards wide, and to have 8 feet water on its shoalest part. Squirrel rock bears from Sea Elephant rock N.E. by N., distant about 4 miles. This bearing and distance places the danger in lat. $39^\circ 47'$ S., long. $144^\circ 14'$ E.

33.—CAPE BRETON ISLAND.—*Little Bras D'Or Lake*.—*Kidston Island*.—A light is now exhibited from a lighthouse on the north-east point of Kidston island, entrance to Baddeck harbour, north side of Little Bras d'or Lake. The light is a *fixed red* light, elevated 31 feet above high water, and should be seen 7 miles. The tower is a square wooden building, painted white. Position, lat. 46° 6' N., long. 60° 44' 20" W.

34.—NOVA SCOTIA.—*St. Mary Bay*.—*Meteghan River*.—A light is now exhibited from a lighthouse on the end of the breakwater at Meteghan river, St. Mary bay. The light is a *fixed green* light, elevated 21 feet above high water, and should be seen 6 miles. The beacon is painted with vertical red stripes on the seaward side. Position, lat. 44° 18' 10" N., long. 66° 8' 40" W.

Note.—Vessels entering the river must pass close to the lighthouse, leaving it on the starboard hand.

35.—BAY OF FUNDY.—*Petit-Coudiac River*.—*Hillsborough*.—A beacon light is now exhibited from a lighthouse 22 feet high, on the end of the public wharf at Hillsborough, Petit-Coudiac river. The light is 14 feet above high water, and should be seen 4 to 5 miles. Position, lat. 45° 55' 15" N., long. 64° 37' 50" W.

36.—BAY OF FUNDY.—*Passamaquoddy Bay*.—*Port St. Andrew*.—A light would be exhibited from a lighthouse recently erected on Tongue shoal, eastern entrance to Port St. Andrew. The light is a *fixed white* light, elevated 40 feet above high water, and should be seen 10 miles. The tower is erected on a frame pier, about 10 feet above high water, is a square wooden building, painted white, and attached to the keeper's dwelling. From the Tongue lighthouse, the lighthouse in Port St. Andrew bears N.W. by W., distant 1½ miles.

37.—UNITED STATES.—*Delaware River*.—*Schuylkill River*.—Two leading lights are now exhibited from lighthouses at the entrance of Schuylkill river, to mark the channel from the Delaware river. The lights are *fixed white* lights, the front, or southern, being elevated 10 feet, and the rear, or northern, 26 feet above high water; they should be seen respectively 8 and 10 miles. The lighthouses are respectively 10 and 25 feet high. The approximate position of the front light is, lat. 39° 53' 15" N., long. 75° 12' W.

Note.—These two lights in line lead from the channel of the Delaware river through the dredged channel into the entrance of the Schuylkill river.

38.—PORTUGAL.—*Tagus River Entrance*.—Information has been received of the existence of shoal ground lying about 2½ miles to the southward of Salmodo point, off the North channel leading into the River Tagus, on which Mr. C. H. Hillecoat, commanding the steamship *Agra*, struck soundings in 22 feet at low water, on the evening of the 26th

December, 1875. Mr. Hillcoat gives the following bearings for the position of the shoal :—Guia Point, N. $\frac{1}{2}$ E. ; Fort St. Julian, E. $\frac{1}{2}$ S.

39.—FRANCE.—*West Coast.*—*Seudre River.*—A *fixed white* light is now exhibited from a lantern suspended from the gable of the keeper's dwelling at Pointe de Mus de Loup, entrance of Seudre River. The light is 22 feet above high water, and should be seen 8 miles. Position, lat. 45° 47' 50" N., long. 1° 8' 40" W.

HYDROGRAPHIC NOTICE PUBLISHED BY THE ADMIRALTY.

No. 36.—Observations relating to the Ports and Shores of New Zealand, made by the officers of H.M. ships employed on the Australian Station. 1873-5.

CHARTS, &c., Published by the Hydrographic Office, Admiralty, to the end of January, 1876, and sold by the Agent, J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill.

No.	Scale.		s.	d.
801	m = 0·4	West Indies :—Approaches to Port au Prince, Haiti	2	6
2341	m = 1·4	Spain :—Entrance of Guadalquivir River.	1	6
769	m = Various.	Pacific Ocean :—Admiralty and Hermit Islands and Challenger Cove, Humboldt Bay, New Guinea	1	6
1700	m = 9·6	Western Australia :—Gage Roads ...	2	0
638	m = 4·9	Africa, West Coast :—Congo River, &c...	2	6
824	m = 0·2	Bengal Bay, East Coast :—White Point to Mergui	2	0
2138	m = 1·0	Approaches to Grön Sound and the Stor Ström	1	6

GENERAL.

MR. LINDSAY'S HISTORY OF MERCHANT SHIPPING.—We are glad to be able to announce that volumes 3 and 4 of Mr. Lindsay's History of Merchant Shipping will be published before the issue of our March number. We shall give a careful review of these volumes as soon as possible after their appearance, but we may take this early opportunity of acquainting our readers that the new volumes contain much more of immediate interest than volumes 1 and 2, and much that can be read with profit, especially at the present moment when the public mind is stirred by questions affecting the Mercantile Marine. We can only express a hope that speakers and writers on merchant ships and seamen will, by a reference to the statistics and facts recorded in this history, preserve themselves from the chances of making such errors in the future as have been so abundant in the past.

RAISING SUNKEN SHIPS.—The sinking of the *Vanguard* off the Irish Coast has set the scientific mind at work to invent some plan to raise the monster ironclad from her "native element." One of the most feasible and popular modes of doing so is that of inflating sunken bags with air, and having secured them to the ship to allow the difference of specific gravity to buoy her up. In reference to this plan, it is curious to note that a paper upon the subject was read before the members of the Academy of Sciences at Paris in 1843, by Monsieur Vian. He termed his invention the Hydrostadt. It consisted of a covered, but light, and air-tight framework. It was filled with water and sunk to the object intended to be raised. The valves were then closed, and the apparatus fixed by chains or ropes to the vessel, a stop-cock, connected with a pipe, was opened, and the pipe made to communicate with two recipients on a stage rigged on a vessel near the spot. One recipient contained an acid, and the other carbonate of lime. A supply of carbonic acid gas was created between them and sent through the pipe to the Hydrostadt in order to displace the water. That apparatus being fitted with a light gas would then rise to the surface, floating up the body attached, if it were made of sufficient extent.

THE "FOUNDLING."—Mr. Plimsoll in commencing his attack on Mr. Bates in the House of Commons last Session read a list of ships that had disappeared, and connected their disappearance with "murderous tendencies" on the part of their owners. One of the ships in Mr. Plimsoll's list was the *Foundling*. That this ship was able to navigate herself

into port having been on fire and having been deserted by her crew is curious, and is in itself a severe criticism on Mr. Plimsoll's imputation. If the ship had been anything but a good ship she would never have been heard of. The following is to be found under the head of "Shipping Intelligence" in the *Shipping and Mercantile Gazette* :—
 "Rio Janeiro.—Nov. 9: An official letter, dated Oct. 3, from the harbour master of Paranagua, describes as follows the hull of a burnt vessel that had drifted inside the bar at that place and was lying in slack water :—'The hull still contains important machinery not destroyed by fire, a large quantity of iron hooks, and about 10,000 English bricks; she evidently belongs to Liverpool, as the letters "LIV" are distinguishable on the stern; the major part of the cargo was coal. The fire has destroyed all woodwork: the lower masts and bowsprit, being of iron, are, however, perfect; the hull is only damaged on the port side, where the topmasts, &c., fell, a few plates being torn; otherwise she is quite tight; draws about 11 feet English of water, and is considered to be of from 1,500 to 1,800 tons.' "

Apology.—I, ———, of ———, mariner, having been threatened with an action by Mr. ———, of ———, through his solicitor, Mr. ———, of ———, for having sent to the Board of Trade a telegram in the name of Timothy Williams, "calling attention to the overloading of the schooner '———,' then ready for sea, lying in ——— harbour," by reason whereof such schooner was detained until after examination, by the Board of Trade, do express my deep regret for having sent such a telegraphic message, for which I admit there was not the slightest foundation, and I hereby apologise to Mr. ——— for having so done, such apology to be published in the papers if thought desirable, and I have also paid £25 as agreed, damages and expenses sustained and occasioned by him. (Signed) ———. Dated, this 20th day of December, 1875.—[The above reprint, from a handbill sent to us, speaks for itself. It is an instance of how easy it is, under the present system, for one person having a grudge against a shipowner, to inflict upon him a serious injury under cover of a fictitious signature. The action of the informer is undoubtedly base in the extreme, but it is, we think, most unfortunate that the opportunity exists by which the Government of the country can be made the means of exercising a piece of malicious spite upon any individual. We suppress names, as it is not our practice to allow personal matters to be made public in our pages.]

THE CASE OF THE "WILD ROSE."—MR. PLIMSOLL'S AGENT WIRED THE QUEEN, AND THE OWNER OF THE SHIP APPLIED TO THE BOARD OF TRADE.—No part of the surveying system inaugurated by recent

Merchant Shipping Acts has given more satisfaction to the ship-owners, or offered more facilities to the general public, or effected more good, than the practice by which a shipowner, a charterer, or a maker of engines, boilers, &c., can obtain a survey by Board of Trade Officers, on making application and paying certain stated fees. A master, charterer, or owner can thus obtain a survey in cases of alleged overloading, and is therefore placed in the same position as a fourth of the crew, a seaman ashore, a workman, a dock labourer, a mere philanthropist, a rival in trade, a Board of Trade officer or a person influenced by simple malice (a case of which we have referred to on page 181 in our present number). Any of these can at any time, by giving *private* information, set in motion the Government detaining and surveying machinery. It is satisfactory to know that an owner has the like privilege in regard to his own ship that his enemies have, and can save any hostile parties trouble by himself applying for a survey. This was well illustrated in the case of the *Wild Rose* at Birkenhead last month. The whole crew combined when the ship was at sea, and insisted on the master putting back, which he did at great trouble and cost. It seems that on learning the condition of things the owner, without waiting for the action of the crew or of Mr. Plimsoll's agent, turned informer, and at once applied for a survey, thus greatly facilitating matters. Perhaps this accounts in some measure for the frantic excitement of Mr. Fyfe, and the bold impudence of his intrusion upon Her Majesty. We have heard it remarked by a shipowner of large experience when discussing this subject, that he did not see why, paying largely as he does to the Mercantile Marine Fund, and assisting to maintain the commercial prosperity of the Empire, he should not, for his own satisfaction, obtain the services of a Government surveyor as easily as the seamen in his employ or as an informer, the more especially as he pays, and the seaman or informer does not. We trust that no system of general surveys will be inaugurated by the Board of Trade, but that in cases of complaints, informations, or disputes, the owners will still be allowed equal facilities with the common informer, or drunken seaman, for obtaining the services of Government surveyors.

REID'S LEITH TIDE TABLE AND SIGNAL BOOK FOR 1876.—This is a very useful little publication for all who want to know anything about the trade and shipping of Leith and the neighbouring ports. In a small compass and for a small sum it gives a vast deal of information, and should be patronised by all who navigate the Firth of Forth and its locality.

TELEGRAPHIC CONNECTION OF LIGHTSHIPS WITH THE SHORE.—The evidence given in the *Deutschland* inquiry unmistakeably showed that it

would often be of great advantage if some, or all of the lightships and isolated lighthouses round our coasts were connected with the mainland by a telegraphic cable. To the general public, no doubt, it would seem that such an arrangement might be simply and readily effected, but there are difficulties in the way which can only be understood by those who are acquainted with the careful measures adopted to ensure the lightships riding safely at their stations, with the nature of their moorings, and the sea-bed upon which the cable would have to lie. In the case of the experimental telegraph ship moored in the chops of the Channel in 1870, the cable frequently got foul of the moorings as the vessel swung round with the tide, and this probably was one of the causes of the non-success of the vessel. Again, in much used channels, such as that between the Goodwin Sands and the land, the cable would be much endangered by ships dragging their anchors, and in some places, such as isolated rock lighthouses, the wear and tear of the cable against the jagged edges of a rocky surface, caused by the motion of winds, waves, and tides, would very soon impair the integrity of the cable and sever the communication. Probably the Trinity Board will after the recent expression of popular opinion give renewed consideration to a subject which has from time to time been brought before them, but which has always hitherto been dismissed by them because of the great difficulties in the way, and because the necessity for telegraphic communication was not so strongly shown then as it now seems to be. Public opinion is generally the result of public necessity, and in these days of steam navigation and an enormously increased commercial traffic round our coasts, the necessity shows itself for some further elaboration in our already elaborate system of marking the coasts. This we doubt not is kept in view by the Trinity Brethren, and in accordance with their previous action in other matters which have from time to time grown up to require special attention, it may fairly be assumed that the difficulties of establishing telegraphic connection with our outlying light stations will now be vigorously combated, with a view to bringing into operation a means of communication between those stations and the mainland, the advantages of which are too obvious to be dwelt upon.

THE
NAUTICAL MAGAZINE.

VOLUME XLV.—No. III.

MARCH, 1876.

TRAINED SEAMEN FOR THE MERCANTILE MARINE.

A GREAT deal has recently been said and written on the subject of providing trained boys for the Mercantile Marine; but it seems to us that almost everyone who has expressed himself in public appears to overlook two important facts, viz., that supply is regulated by demand, and that services required can generally be obtained by paying for them. This latter principle holds good notably in the case of soldiers and sailors, both for the Royal Navy and the Mercantile Marine. To obtain the services of trained boys, or of any boys for the Mercantile Marine is very easy. Pay for them; and by payment in this case we not only mean actual wages, but also liberal treatment as to diet and work, and accommodation for living in a fairly satisfactory manner.

All the proposals we have yet seen for obtaining boys, trained or otherwise, for merchant ships, proceed on the assumption, false at very bottom, that by the adoption of some scheme, national or otherwise, good sailors, said to be in demand in the market, can be got at less than the cost of producing and training them. To obtain the services of boys by paying straight for them appears to be by far too easy a process for the ingenious mind.

The advantages of supplying trained boys for the Mercantile Marine are, under the existing state of things, threefold:—

1. The present system by which boys are sent to school-ships is of social and moral advantage to the entire nation. It takes boys from the gutter and from neglectful parents, and teaches them a trade. The same

may be said of boys of the same class taught any trade in an industrial school, or in any charitable institution.

2. The system has also the direct advantage of sending into a special labour market, boys who would not otherwise go there. This advantage is not like the first—a direct advantage to the entire nation—but is a direct advantage to one particular class of employers of labour, viz., the shipowning class.

3. The system has also the advantage that it trains boys for an employment which is, in a certain percentage of cases, of direct value to the State, since it furnishes some recruits for the Royal Navy and the Army, and for the Royal Naval Reserve. This, like the first, is an advantage, though in a smaller degree, to the entire nation.

It is, we think, admitted on all hands that the public revenue should not be spent in training workmen to work for shipowners, any more than it should be spent in training boys to become tailors, miners, cotton-spinners, shipbuilders, bootmakers, &c., &c.; but we think it must be admitted as correct in principle that, if the State does educate, and train boys or men in a special technical subject, such as bootmaking, riveting, mining, sailing, or tailoring, and if by this means the employer of the journeyman bootmaker, riveter, miner, sailor, or tailor, so trained by the State, obtains thereby special advantages by the superiority of the labour obtained, and by the increased facilities for obtaining such labour, he certainly ought to contribute to the State specially for those advantages obtained by him; and the superior workman himself, who has been trained by the State, ought to recoup out of his superior wages at least some of the expense incurred in his maintenance and education. If, however, by the State training boys for a particular trade the supply of workmen for that trade were to become greater than the demand, and wages were to fall in consequence, then the employers of those workmen certainly ought to contribute to the State more largely by a special tax, for the State will have placed them in a position of undue advantage by every penny they may have less to pay in wages.

The whole case really is in a very small compass. The police authorities wish to get boys out of the gutter and keep them from crime. That is right, and is an advantage to the State. Then let the State pay for it when the parents cannot, whether the boys are put into school-ships or industrial schools. The education authorities wish all boys to be educated. That is right, and is an advantage to the State; therefore let the State pay for it when the parents cannot. The charitable and philanthropic man wishes to contribute out of his amassed riches something towards the comfort and elevation of the suffering poor, and he does so by co-operating with other men of like mind, and they start, or help to maintain, a training-ship. That is right, and is a direct

advantage to the State. Let them do it, and do not plug up the well-springs of their bounty by making payments out of the public revenue in competition.

The shipowner wants *trained* boys. Let him have them for nothing from the institution kept up by charitably-minded men, so long as the men so minded will continue to find the boys and train them for the shipowner. When the charitably-minded men are tired of supplying trained boys to the shipowner, or have not enough on hand to supply the demands of the shipowner, the latter will have to get the boys he wants by paying for them. There are two ways in which he can pay for trained boys—he can either take the boys on board his ship as raw material, and train them there at his own cost, or he can go to any establishment where boys are kept, and offer to the managers of the establishment a sum of, say, £30 down for such boys as can pass muster for sea service. The Royal Navy wants boys. Let the Royal Navy do the same as the shipowner—obtain the raw material and train it, or take the trained material and pay the trainer. For recruits for the Royal Naval Reserve, let the State pay a sufficient sum, and make such liberal offers in the way of facility for drills, clothing, and pensions, as will enable and induce competent men to enrol, and the recruits will be forthcoming.

Our ingenious friends may go in and out and round about this subject as much as they wish, but they will find in the end that the whole question is a question of wages. Whether, as the Royal Commissioners on Unseaworthy Ships proposed, the shipowner should pay sixpence a ton on his ships, and the Board of Trade should spend it for him in converting the raw material into merchant sailors, or whether the shipowner chooses to lay out sixpence a ton in extra wages, and accommodation and comfort for apprentices on board his own ship, the fact is the same ; the shipowner must pay if he wants the trained lad.

We think that any scheme like a “national” scheme has nothing to recommend it but a grandly-sounding name ; but we also think that, if the British shipowner wishes to tax himself, and to employ an agency for bringing forward trained boys, he cannot do better than place the revenue from that tax in the hands of a competent Government department, to be laid out in such a way that it shall not check the flow of private benevolence and voluntary effort, and shall not be converted into a method for handicapping the boys of respectable parents in favour of the *quasi* criminal class.

The preceding remarks are written on the assumption that the State does not require any accession of strength to the Naval Reserve beyond that which can now be obtained from the existing Mercantile Marine. If the present Reserves are not sufficient for this, then of course the

question must be opened up on broader grounds, and must involve a consideration of the question whether the terms offered to the men of the Reserve are sufficiently liberal to induce the whole, or nearly all, of the eligible men in the Mercantile Marine to enrol in it; and if, when they are all enrolled, the men are not sufficient in numbers, what further steps should be taken to increase the number, and whether those steps should be in the direction of the State training the whole body of merchant seamen, or of training so much of the whole body as may be requisite for the special purposes of the Reserve forces of the Royal Navy.

The above considerations we commend to all who are concerned in the matter of providing trained seamen for the merchant service. Our article was in type before the new Government Merchant Shipping Bill came out, and now that it has appeared, we think the plain common sense view we have ventured to put before our readers, deserves some careful thought in connection with the clause in the Bill regarding training-ships.

EMIGRATION TO SOUTH AMERICA.—No. V.

1.—CHILI, FALKLAND ISLANDS.

2.—BOLIVIA, EQUADOR, PERU, COLUMBIA, VENEZUELA, BRITISH, FRENCH, AND DUTCH GUAYANA, THE WEST INDIES, CENTRAL AMERICA, MEXICO, AND THE GULF STATES OF NORTH AMERICA.

IN my former articles upon this subject, I have entered so fully upon the advantages and disadvantages possessed by the typical South American States, Brazil, and the Platino Republics, as fields for European emigration, that it would be futile to repeat arguments equally applicable to the rest; it will be sufficient to classify them under their respective prototypes, and to offer any exceptional observations which peculiar circumstances may call for.

From this point of view, they may be classed under two heads, those which, like the Argentine Republic in part, and the Uruguayan Republic *in toto*, possess unexceptionable climates, and many other advantages, modified, however, and altogether outweighed, as regards the British labourer, by serious drawbacks; and those which, like Brazil (with the exception of her Southern Province of Rio Grande do Sul), are utterly hopeless for European emigrants, owing to the extreme heat and insalubrity of their climates; a difficulty neither to be overcome, nor even mitigated, by any benefits or privileges which may or do exist.

Under the first category Chili and the Falkland Islands can alone be classed ; of the latter very little need be said ; they are a group of small islands, off the coast of Patagonia, belonging to Great Britain, but claimed by the Argentine Republic. Like every other British colony, they possess all the advantages of good government, and security of life and property ; but their extent is so limited, having only 6,000 square miles of surface, and the climate so extremely cold, being situated in lat. 50° south, that they may be dismissed from consideration as regards emigration. The inhabitants have latterly introduced sheep-farming with some success, but the islands are chiefly valuable as a port of refuge for our shipping, and, politically, for their position at the entrance of the Magellan Straits.

CHILI.

Chili, however, merits marked attention ; its government is better administered than that of any other South American Republic, consequently life and property are more secure in Chili, and the country has been freer from those periodical revolutions which have so generally disgraced the other Republics of Spanish origin.

It extends from Cape Horn, in lat. 55° S., in a narrow slip of land, betwixt the Cordilleras of the Andes and the Pacific Ocean, to the desert of Atachama in the tropic of Capricorn. Its surface is variously given as 130,000 to 250,000 square miles, including the islands in the Archipelago of Chiloe. Its population may amount to about 2,000,000, but, owing to the manner in which the census is taken in every South American State, very little dependence can be placed upon it. Its mineral wealth is very great ; gold, silver, copper, lead, coal, and the nitrates of soda and potash are all exported, the copper being equal in amount to 60 per cent. of the entire production of the world. Its agricultural produce is also very considerable ; and, in 1872, wheat to the amount of 100,000 tons was exported, of the estimated value of £1,000,000 sterling. The total value of its exports was £7,424,492, of which £3,567,998 were for minerals ; the value of the imports for the same period was £6,931,585.

The shipping entering the different ports of the Republic amounted to 3,000,000 of tons, and a fortnightly communication between the east coast of South America and Europe is carried out by the superb vessels of the Pacific Steam Navigation Company.

It will be seen that from the limited extent of her territory, and the nature of her productions, Chili is more independent of foreign immigration than such States as Brazil and the Argentine Republic, with the immense amount of territory which they have to populate and develop ; nor is it, in fact, a country well adapted to European agricultural

labourers. The great industries of Chili are its mining and railway operations ; its soil may be best cultivated by its indigenous population, aided by a limited number of Spanish Basques, if they can be obtained ; but as Spain is fast depopulating herself by her colonial wars and domestic insurrections, and the Platine States absorb the Italians, she will have to look (in common with so many other States) to China for such extraneous aid as she may require.

It must also be borne in mind, that even climatically, its territory, north of Coquimbo, is very ill-adapted for the employment of Europeans in field labour, on account of its proximity to the tropics, and that south of Valdivia, it is equally so from the inclemency of the climate and the sterility of the soil.

But for engineers, miners, and skilled mechanics of all sorts, Chili is one of the finest countries in the world ; her railway routes across the Andes are in a fair way of development, and her mines may be said to be inexhaustible. She is a solvent State, with a debt of only £8,000,000, whilst that of Brazil is £69,000,000 ; of Mexico, £63,000,000 ; of Peru, £43,000,000 ; and of the Argentine Republic, £24,000,000.

The value of her commerce is £13,000,000. She has 870 miles of railway completed, and 2,000 miles of telegraphs. Chili is, therefore, a country which can pay her way, and, not like many of her sister States, who anticipate their income, and live upon the prospects of the future.

All that I have said to dissuade British emigrants from going to the Platine Republics and Rio Grande, in respect of expatriation, difference of laws, customs, religion, and race, applies with equal force to Chili ; it is merely a question of degree. As regards climate, they are admirable ; their forms of Government are liberal, the laws good, and if only the laws and the Government were well administered, if the race were Anglo-Saxon, if even the habits and customs of the people resembled our own, if the language were English, and if the practice of religion were tolerant if immigration were spontaneous, and if no British Colonies or the United States existed, possessing all the advantages and none of the disadvantages of these States, then, and only then, would I recommend my poorer countrymen to go to them.

In the second category must be placed those States, of which Brazil is the prototype, countries which, from their geographical position and climate, are destined to be peopled by coloured races ; the destiny is unavoidable. Nor are there any other reasons but ignorance and prejudice why they should attempt to escape it. All the efforts in the world will never people Brazil, Paraguay, Peru, Equador, New Granada, Venezuela, British, French, or Dutch Guayana, the West Indies, Central America, or even Mexico, and the Gulf States of North America, will

European or any other white agricultural immigrants, and they only impede their natural development by attempting it.

Still, some of these States are extremely important, and as offering fields for the energy and skill of our artisans and the speculations of our merchants, a short notice of each may be interesting.

BOLIVIA.

Bolivia is, like Chili, one of the Andine States of South America, and lies entirely within the tropics ; it once formed a part of the vice-royalty of Peru, but at the revolution became a separate Republic, under its present name, in grateful remembrance of Bolivar, the father of South American independence. It contains a mixed population of the Spanish and Indian races, amounting to about 2,000,000 ; its superfiice has been variously estimated at from 350,000 to 470,000 square miles. Its revenue amounts to about £1,500,000, and its public debt to £3,200,000. It has about 200 miles of railway, and 300 miles of telegraphs completed ; and the value of its trade, which consists principally of minerals, the precious metals, nitrates, alpaca, and other wools, chinchilla and other furs, amounts to about £3,200,000 annually.

Previous to the Spanish conquest, Bolivia, in common with Peru, had attained to a very high degree of civilization, and Cuzco was the capital of the Incas. The ancient civilization has disappeared, and the new has not yet had time to develop itself to any degree of perfection. The separation from Peru, or the terms upon which the frontiers were adjusted, was detrimental to Bolivia, as it almost excluded her from the coast of the Pacific, upon which she has but one indifferent port, that of Cobija, and the bulk of her trade is thus forced to pass through the Peruvian towns of Tacna and Arica.

Civil war, and insecurity of life, have been the bane of this fine country, as of all the Spanish Republics ; and most of the European nations, as well as the United States, have long since suspended diplomatic relations with Bolivia ; this was inevitable from the contumely with which foreign agents were treated ; but it is to be hoped that the Government will give such assurance to foreign States that they may be renewed. It cannot certainly be advantageous to any country to keep herself excluded from official communication with other civilized States ; friendly intercourse and international comity, if not the very basis, are at least important adjuncts to national prosperity. The want of them renders our information from Bolivia anything but reliable, and probably contracts her commercial relations with this and other countries, as it certainly embarrasses her means of borrowing money abroad.

Upon the question of European emigration, the nature of the country renders Bolivia somewhat of an exception to my general denunciation of

the tropics, for the great plateau of Bolivia, said to contain 180,000 square miles of surface, is 12,700 feet above the level of the sea, and there, at least, Europeans might work in the open air; but they would be isolated, for any attempt to descend to the valleys, or to visit the coast, is as dangerous, even to natives of the plateau, as for Europeans; they are equally subject to the fatal attacks of yellow fever and other tropical diseases.

But, like Chili, Bolivia is a country where engineers and miners should be able to find profitable employment, especially in the Cordilleras, where stupendous railway enterprises are projected and where the mines are situated. I say should, as there are discouragements in Bolivia which do not exist in Chili, where the country is almost altogether healthy, where there is a more stable government, freer from revolutions, and in diplomatic relations with all the world. Bolivia must let us know more of herself before we can venture upon sending our people to her. She must not view the world from her highest city in the world—Potosi, 13,850 feet above the level of the sea—and forget that there are other nations betwixt her and the horizon.

PERU.

Peru was, at the time of the Spanish Conquest, the seat of the Indian civilization of South America, as Mexico was of North America. It then became the vice-royalty of Peru, and, perhaps, the most valuable of all the vast possessions of Spain. At the revolution, which ended in its independence, it separated from the other States of the vice-royalty, and became the Republic of Peru.

It is situated entirely within the tropics, and is consequently unfit for European immigration, but it is, nevertheless, a very flourishing State, and it would be much more so if it could only suppress its military "pronunciamentos" and introduce economy into its administration.

It has a coast line upon the Pacific 1,500 miles in extent, and the great River Amazon, which has its principal source within its territory, is destined at some future period to afford it direct water communication to the Atlantic. It has a population of 3,200,000 inhabitants, ethnologically the same as Bolivia; its superficial extent is variously given from 303,000 to 580,000 square miles. Its exports consist of the precious metals, copper, nitrates of soda and potash, bark, alpaca and sheep's wool, cotton, chinchilla, skunk and Vicuna furs, and the produce of the best and most extensive guano deposits in the world. Its imports include all the principal manufactures of Europe and the United States; the combined value of both imports and exports being £11,100,000. Owing to the fact that much of the produce of Bolivia and Ecuador pass through Peru for shipment, and figure first as imports from those countries,

and then as exports from Peru, there is inevitable confusion in the commercial statistics. Humboldt estimated the value of gold and silver produced in Peru at a million and a quarter of pounds sterling, but it does not now exceed one-half of that amount.

The returns of the annual revenue of Peru amounts to £11,800,000, and its public debt to £48,000,000. There are 1,100 miles of railway and 2,000 miles of telegraph wires completed.

The country is geographically divided into three parts, that lying betwixt the Andes and the coast, which is extremely arid and generally devoid of cultivation; the Cordillera itself, which within the Republic is roughly estimated to cover 200,000 square miles; and, lastly, the country east of the Andes to the frontiers of Bolivia and Brazil, covered for the most part by the impenetrable forests which surround the basin in which the Amazon and its affluents take their rise, and peopled exclusively by Indians, and the members of the Jesuit missions, who devote their labours to their improvement and civilization. The first and last of these divisions are extremely unhealthy, and too often fatal to newcomers; the second, or mountain region, especially about Cuzco, is like the Bolivian plateau, very healthy.

Like Chili, Equador, Bolivia, and all the Andine States, Peru is fearfully subject to earthquakes, which upon several occasions have destroyed entire cities.

As regards European immigration, Peru must take its place amongst the condemned States, and rest satisfied if she can obtain scientific men and skilled artizans, for her mining and engineering operations in the Cordillera. Merchants, shopkeepers, or medical men, who will brave the fatal fevers and enervating climate of her coasts, and religious enthusiasts who, content with their good works, will lead a life of ostracism and seclusion amongst her Indians, her swamps, and intermittent fevers, may at great risk maintain existence in this country; but for the cultivation of her soil she must, like Brazil, rely upon her coloured races. She has some negroes and abundance of Indians, and although very adverse opinions are expressed of the latter, of their filth, idleness, and ignorance, it is impossible to believe that the descendants of the people of the Incas, can so far have degenerated as to be incapable of being reclaimed, and turned into valuable citizens. The trial is a duty and a debt which the Spanish race owes to the Indian, the payment of which would afford the Southern continent a glorious opportunity of showing the Northern, that if their ancestors deprived the Indians of their country, the descendants of the conquerors were able and willing to make as much reparation as possible, by granting them allotments which would be inviolable, and thus enabling them to cultivate their native soil, and to become good citizens instead of exterminating them.

For this purpose the Southern continent possesses great advantages over the Northern, which has been driven by the force of circumstances beyond its control, and altogether foreign to the character of its people, into a policy which is fast obliterating the ancient inhabitants. Its climate, its free and noble institutions, the security of life and property, all attracted the most migratory and energetic races of Europe, who naturally drove the Indians from the Atlantic to disappear in the Pacific. But the Southern continent has no attractions for these races; indeed, its climate, for the most part, is fatal to them. Consequently the destruction of the Indians would be wanton cruelty without the slightest justification, whilst their preservation would, on the contrary, be not only a noble act of humanity, but one of the wisest policy; for what can be more suicidal, than to destroy the native population, with the physical certainty of being unable to replace them?

It is needless for me to describe in detail the other tropical States, the same arguments against European immigration, and in favour of indigenous labour, apply to them all. I will, therefore, bring my observations to a conclusion by exhorting my countrymen to reject all overtures for foreign emigration. No misery which they may have to endure at home can compare with what they may have to encounter abroad. Necessity cannot drive them there whilst our Colonies and the United States are open to them. Within the tropics no European agricultural labourers have ever prospered: on the contrary, they have immigrated to their graves. Some have partially succeeded in the trans-tropical foreign States, but at the cost of sacrifices which they could never have contemplated; but all who have deserved it have been prosperous and happy in countries inhabited by our own race.

Let one great principle be borne primarily in mind by intending British emigrants—never to attempt a climate within 30° north and south of the equator; let him pass a black brush over this region on the map; it is not for him, but for coloured men, whom Nature protects from his invasions by invincible guards—the sun, yellow fever, and cholera morbus.

I once read a book, with the title, “What to Eat, Drink, and Avoid.” I will paraphrase this, for the emigrants’ benefit, by the words, “Which to Choose, to Beware of, and to Reject,” and give him the following list, including—but not confining myself to—South America:—

TO CHOOSE.				TO BEWARE OF.				TO REJECT.			
Canada	...	...	...	Brazil, S. of 30°	...	Brazil, N. of 30°	...				
United States, N. of 30°	...	...	...	Uruguay	...	...	Paraguay				
New South Wales	...	...	...	Argentine	...	...	Bolivia				
Victoria	...	...	...	Chili	...	...	Peru				

To CHOOSE.				To REJECT.			
South Australia, S. of 30°	Columbia		
Western Australia, S. of 30°	Central America		
Tasmania...	Mexico		
New Zealand	United States, of 30°		
Cape of Good Hope	West India Islands		
Falkland Islands	Venezuela		
					The Guayanas		
					Australia, N. of 30°		
					West Coast Africa		

It will be seen by this, that I reject absolutely the greater part of South America as a home for the British emigrant, and I cannot too strongly once more dissuade him from even those parts, of which I only bid him to beware; everything that has hitherto been attempted has proved a failure; nothing that is doing is likely to be successful, nor will any future inducements which may be held out, even if their fulfilment were certain, justify him in rejecting the magnificent choice which is presented to him in the first column, of a sure, prosperous, and happy settlement amongst his own countrymen and kin.

THE CRAB AND LOBSTER FISHERIES OF CROMER.

THE crab and lobster fisheries of Norfolk have their headquarters at Cromer, Sherringham, Runton, Weybourne, and the adjoining villages situated along the coast on the extreme north of the county of Norfolk. The Cromer fisheries begin on the eastward at a point opposite Sidestrand, and extend as far west as Runton. Cromer itself is situated at about the middle of this district. The Sherringham fisheries begin on the eastward of Runton, and extend westward to about opposite Weybourne. We have a description of the mode in which the fisheries are conducted in Mr. Frank Buckland's report and suggestions for legislation which have very recently been brought to the notice of the Home Secretary by the gentry and others resident upon the spot who are interested in their preservation. The crab-pots are set out at sea from the fore-shore to the distance of about two miles. The extent of the united Cromer and Sherringham crab fisheries is about eight and a quarter miles long by two wide. The bottom of this district consists of large flints, with a large portion of marl, in which are found occasional large rocks from one to four hundred weight each. The sea bottom is very irregular, so that a trawl net can-

not be used. The whole of this sixteen square miles is a vast forest of seaweed, and is naturally a splendid breeding and feeding place for crabs. After a limit of two miles from the shore, the weeds and rocks begin to gradually disappear, and the ground begins to be what is called "spotty," *i.e.*, rock alternating with smooth ground. The crabs are scarce in this spotty ground. In former times the crabs were caught by what is called the "hoop net." This was sunk to the bottom of the sea and worked with the hand, after the fashion of a minnow net, but about 12 years ago crab-pots were invented. They are made of a large cage of thick string netting, fastened across bows of iron or wood. This cage is one foot nine inches long, and one foot three inches across the bottom. The crabs enter the crab-pots through two funnel-shaped doors, which act on the principle of a mouse-trap; a side door can easily be let down and the crabs removed. The bait used for catching crabs are flat fish, locally called "butts." These butts and other dead fish are fastened inside the crab-pots by being placed between two leather thongs: a sliding button keeps them in position; they are sunk to the bottom of the sea.

It appears from the evidence given that the crabs and the lobster fisheries, the principal industry of this neighbourhood, and of immense importance to the inhabitants, have fallen off and become impoverished in the last few years to an alarming degree, and in the absence of some remedy their extinction is feared. At Cromer the population is about 1,415: of these, about 120 are fishermen; upon their earnings the wives and children principally depend. Formerly, the fishermen used to clear between £3 and £4 per week during the height of the season; now they clear about £1 per week, and often not so much as that. The cause of the decrease of the crab and lobster fisheries is, first, the *wholesale destruction* of small crabs, called "toggs," or "short-crabs;" and, second, the destruction of crabs and lobsters in spawn. These togg crabs are little things. Five specimens were handed into court by a fish merchant, for examination. Two of them measured across the back respectively $2\frac{1}{4}$ inches and $2\frac{3}{4}$ inches; the others 3 inches each. These are sent to the market for food. The little crabs are also ruthlessly smashed up at sea, and used as bait to catch the butts and other fish, which are used as bait for the crab pots. This terrible destruction of small crabs has been going on for many years.

In former times there was an Act of Parliament (83 Geo. 2, c. 27, s. 13), which read as follows:—"That no person shall take, or destroy, or knowingly have in his possession, either on the water or on shore, or bring to shore, or cry, carry about, or expose to sale or exchange for any goods, any spawn, fry, or brood of fish, or any unsizeable fish, or any fish out of season; and if any offend, the fish-baskets shall be

seized, and every offender shall forfeit for every such offence 20s. or three months' hard labour may be given in default." A placard in which this Act was produced ran as follows :—" Agreeably to the intent of the law thus provided, the main body of the fishermen are come to the resolution not only to abstain from breaking up, bringing on shore, exposing for sale, or destroying in any manner whatever, the brood of those fish commonly called short crabs and lobsters, but also to use every proper and lawful means in their power to prevent others from injuring the breed by any of the above-mentioned practices." For some time this clause was put into force : ten years ago several local fishermen were brought before the magistrate for the non-observance of this clause. A list of summonses under the Act was handed into court, from which it appears that twenty-eight people had been summoned between May, 1842, and July, 1864, before the magistrates, and most of them were convicted for taking unsizeable lobsters and crabs. * It was then pleaded that a crab was not a fish. The enactment of 33 Geo. 2, c. 27, has been now repealed by the Sea Fisheries Act of 1868. In this Act the following definition occurs :—" The term ' sea fish ' does not include salmon, as defined by any Act relating to salmon ; but, save as aforesaid, includes every description both of fish and of shell fish which is found in the seas to which this Act applies." A crab, therefore, is now a " sea fish."

At Cromer and the neighbourhood the crabs are counted by a peculiar standard : thus, two crabs are counted as one. The two crabs being called a *cast*, six score cast of crabs is called a hundred. At Cromer, therefore, a *hundred crabs is two hundred and forty*. If one boat catches, in two tides' fishing, 10 casts or 20 crabs, it is considered a bad catch. A good catch would be three-quarters of a Cromer hundred, or 180 crabs. There are about 50 boats, each worked by two men, used by the Cromer fishermen ; each boat would net from 30 to 35 pots. A new crab-pot costs about 8s. These pots were invented about 12 years ago. The crab-pots are frequently carried away and lost, the screws of steamers getting entangled in the ropes attached to the pots. Supposing, therefore, that the 50 boats have bad luck, there would be caught at Cromer daily 1,000 crabs ; supposing the 50 boats had good luck, they would catch 9,000 crabs ; this would give for the year a total catch, with bad luck in the open time, which is proposed, the 1st of March to the last day of any, being 184 days, less 26 days for Sundays, leaving 158 days for fishing, of 158,000 crabs. With a season's good catch, during the same hours the taking would amount to 1,422,000 crabs. If this number are caught under the existing state of things, with care and preservation the number and size would be immensely increased. Sizeable crabs are sold in the Norwich and London markets at the average

of 50s. per Cromer 100, or nearly 3d. each; these are all sizeable crabs. The dealers will not take the toggs if they can help it. The larger the crabs the more money the fish merchant will give for them.

The lobsters in the same locality have from similar causes been getting very scarce the last ten or twelve years; the average size is also much diminished. Having taken all the evidence available, the following were the conclusions arrived at:—

1. That the close season for crabs should be absolutely fixed, viz., from the 1st of September to the 1st March, *i.e.*, six months; the legal time for taking crabs should be fixed from the 1st of March to the 31st of August, six months.

2. That a close time for lobsters should be fixed, viz., from the 25th of June to the 25th of July.

3. That all crabs and lobsters carrying spawn or ova should be returned immediately to the water with as little injury as possible at all times of the year.

4. That no crabs shall be taken from the sea that measure less, by standard gauge, than four inches and a quarter across the back.

5. That no lobster shall be taken from the water less than seven inches in length from end of the tail to the top of the beak, not including the horns.

6. That all unsizeable crabs and lobsters should be immediately returned into the water with as little injury as possible.

7. That no person shall have in his possession, whether for sale or not, at any time of the year, any unsizeable crabs or lobsters.

8. That no person shall break up or destroy any crab below the standard, either at sea or on shore.

9. That it shall be illegal to boil live crabs gradually in cold water.

The above regulations will, it is believed, meet the wishes of the fishermen and inhabitants of Cromer. The matter upon which they treat is not only of the utmost importance to the parties immediately interested, but also to the public at large, and this, inasmuch as the teeming population of England is eating up the products not only of the land, but also of the ocean. Vast as are the resources of the sea, yet it is possible that modern requirements and want of scientific cultivation for fishing may draw too much upon the general stock in certain localities.

SAILORS NOW AND SIXTY YEARS AGO.

IN the *Quarterly Review*, for January, there is an able article entitled "Merchant Shipping and further Legislation," in which are presented with great clearness and with convincing statistical evidence the real facts upon which alone any correct opinion can be formed of the relative condition of our merchant shipping in respect to seaworthiness and loss of life at the present time and sixty years ago. We have in these pages frequently asserted the truth of the conclusions arrived at by the author, and we will now give another way of treating the subject which has been suggested to us by the above article.

In the years 1816-17-18, the whole of the foreign trade of the United Kingdom was carried on by sailing ships, the tonnage entered and cleared foreign averaged 3,180,472 tons, and the average number of lives lost in each of these years was 768. If we accept the above tonnage as a fair proportionate measure of the total amount of work done by the whole registered merchant navy in each of those years, we may then write down that for every 4,168 tons employed in the foreign trade one life was lost by shipwreck sixty years ago.

The aggregate tonnage of ships belonging to the United Kingdom averaged for these years 2,434,789. Allowing 4.5 men per one hundred tons we have 109,565 seamen, or one man to every 29 tons employed in the foreign trade. It is not meant by this that there was one man in the foreign trade for every 29 tons, the whole trade, home and foreign, is in this argument assumed to be proportionate to the foreign trade.

In 1872 the foreign trade carried in sailing ships amounted to 11,309,061 tons. At the same rate of cost as that which was the standard sixty years ago, this work ought to have cost the labour of one man for every 29 tons, and one life for every 4,168 tons, or 389,965 men and 2,713 lives. Now the total number of men employed in British sailing ships in 1872 amounted to only 137,101, and all the lives lost amounted to only 1,609; therefore, we have this remarkable fact that, comparing only sailing vessels with sailing vessels, so that the new conditions of steam navigation may not affect the result, if the work of 1872 had been accomplished with the same style of vessel and appliances as those employed sixty years ago more than a thousand lives additional would have been sacrificed, and above a quarter of a million seamen extra would have been necessary.

The above argument is that indicated in the article we refer to. We have worked it out at full length in the above example, but the results are given for a series of years in that article, and they in every instance

show that the carrying trade of our merchant navy is worked in recent years much more economically than formerly, both in respect to labour employed and to lives lost.

But while the above is strictly true and perfectly sound, viewed as a question in political economy, there is another aspect the same facts may present quite consistent with the above, and yet, at first sight, to some minds, seemingly quite the opposite. A great saving of life may mean greatly increased risk of life ; take the following illustration :—

The shipping trade of Great Britain cost in 1872 the labour of 203,720 men and the lives of 2,000 men. Suppose that the same amount of work is done year after year, and that the same number of lives are lost each year, it could not be said that that indicated increased unseaworthiness. Further, suppose that by some means a saving of labour to the extent of 720 men could be effected without increasing the loss of life, surely that would be an improvement and a benefit, even if the loss of life remained undiminished. The risk to a seaman would be then one in one hundred.

Suppose, further, that by mechanical improvements one-half of the seamen could be dispensed with, and that at the same time the loss of life would be diminished by one-fourth while the same work was being done, would that result be a just ground for asserting that ships were depreciating, and that shipowners were becoming unprincipled and careless of the lives of their seamen ? The risk of life to a seaman employed would, however, now be increased, for out of 100,000 seamen employed 1,500 lives would be lost, or three out of 200, instead of two out of 200 as before.

Here, then, we have a paradox, a saving of life has been effected, and the result is that the risk to every seaman employed has increased 50 per cent. We might have carried our illustration further and thereby have made the seeming contradiction more striking, but we are satisfied that our readers will comprehend the force of our paradox under the conditions we have specified, for they are those to which it is quite possible the practical question may one day be reduced. Let the public mind clearly grasp the idea we are now presenting for consideration, unless life-saving increases in at least an equal ratio with labour saving : is labour saving to be proscribed ? In the last sixty years the saving of life and the saving of labour have both advanced by great strides in proportion to the work done, but the saving of labour has progressed more rapidly, and the result is that whereas in 1816 the annual risk to a seaman was one in 143, it was in 1872 one in 101, taking steam and sailing vessels ; and we have reason to suppose that that risk may be increased in the future without any increase in the expenditure of lives, merely by improvements in labour-saving apparatus.

Taking sailing vessels alone in 1872 the proportion is one in 85, instead of one in 143 in 1816.

It is shown in the article which has suggested these remarks to us that in comparing the returns for recent years with those for sixty years ago, we must make allowance for ships being now a greater part of each year at sea. The tug-boat and mechanical appliances for loading and unloading have chiefly contributed to this result, and the increased risk to the seaman, shown by the above figures, is in some measure due to the fact that he is now more time at sea in each year.

To the seaman the aspect in which we are now presenting this subject is one of great importance. The political economist or members of Chambers of Commerce may congratulate themselves on the reduction in the number of seamen required, and point to a reduction also, although in a less ratio, in the number of lives lost; but the improvement which exposes the seamen by lot one in 85, instead of one in 140, is an economy in which the seaman ought to participate pecuniarily; a proportionate share of the increased profit ought to be awarded to him, the expectation of life being reduced to every seaman while improvements in labour-saving apparatus are developed faster than improvements in life-saving apparatus.

THE REPORT ON THE LOSS OF THE "DEUTSCHLAND."

THE result of the inquiry into the loss of the s.s. *Deutschland*, as shown in the able and comprehensive report of Mr. H. C. Rothery, appears to be that the accident was caused by the vessel having got ahead of her reckoning, owing to the disregard by the master of the force and direction of the tide. It could hardly be expected that this simple and straightforward explanation of the matter would be sufficient to satisfy the worked-up feelings of the general public in Germany and in our own country, and Mr. Rothery has, therefore, considered it within the scope of his inquiry to investigate every point which has been raised in reference to the disaster, and the means adopted for rescuing those on board from their position of peril. These side issues are dealt with as follows:—

Condition of the "Deutschland" and her Equipments.—It appears that the ship herself was a strong well-built vessel; that she had an experienced captain in charge of her, a full and efficient crew of officers and men, was not deeply laden, had an ample supply of boats, and was in every respect thoroughly and efficiently equipped and provided with

all things necessary to enable her to make her voyage in safety. As regards the breaking of the propeller, Mr. Rothery says that "On the whole we see nothing to lead us to believe that the propeller was other than a perfectly sound and good one, and we think that the mere act of turning the engines suddenly full speed a-stern when they were going a-head and with such a sea as was then on, is quite sufficient to account for the blades flying off." But notwithstanding the general efficiency of the vessel's equipments, it appears that the boats could not be used, the signal-gun proved to be useless because the touch-hole was stopped up, the propeller broke, and not any lives were saved by means of life-saving apparatus of any kind. This bears out the opinion we have before expressed in our pages, that the value of life-saving gear is considerably over-rated, and that in nearly all cases of sudden shipwreck boats prove to be of very little use.

Was Assistance rendered as Soon as it Could be?—On this point the report exonerates all those on whom blame had been cast. The brig *Ino*, the lightships, the authorities at Harwich, Ramsgate, Broadstairs, and Sheerness are all declared to be free from blame, and Mr. Rothery remarks that having regard to the evidence, "the conclusion is irresistible that any attempt to go out to the Kentish Knock Sand on that night would have resulted in failure."

Are the Charges against the Smackmen well Founded?—The report entirely acquits the smackmen of the serious charges brought against them of pillage, robbery, and mutilation of dead bodies. This is highly satisfactory, but it shows how readily unfounded reports are circulated and used to exaggerate the horrors of such an occurrence.

Communication between Lightships and the Shore.—In regard to this subject Mr. Rothery has, as might have been expected, a good deal to say. He urges very strongly the necessity for more efficient means of communication by telegraphic cables or otherwise, as evidenced by the facts of the case of the *Deutschland*. It is, we think, more than probable that in Mr. Rothery's report the authorities will find an additional stimulus to continue the investigations they have commenced into this difficult subject with a view to making the communication between lightships and the shore more effectual than hitherto.

The form and literary style of the report are admirable, and may, we think, be most advantageously studied by all who have to frame official reports. Redundancy and vain repetition are not to be found, but the whole of the report is clear and straightforward, and as concise as the nature of the inquiry will admit.

THE MERCHANT SHIPPING BILL, 1876.

ARRANGEMENT OF CLAUSES.

PRELIMINARY.—Clause 1. Short title. 2. Construction of Act.

UNSEAWORTHY SHIPS.—3. Sending unseaworthy ships to sea a misdemeanour. 4. Obligation of Shipowner to Crew with respect to use of reasonable efforts to secure seaworthiness. 5. Power to detain unsafe ships and procedure for such detention. 6. Constitution of Court of Survey for appeals. 7. Power and Procedure of Court of Survey. 8. Rules for procedure of Court of Survey, &c. 9. Liability of Board of Trade and Shipowner for costs and damages. 10. Power to require from complainant security for costs. 11. Supplemental provisions as to detention of ship.

APPEAL ON SURVEY OF PASSENGER STEAMER AND EMIGRANT SHIP.—12. Appeal to Court of Survey on survey of passenger steamer or emigrant ship. 13. Reference in difficult cases to scientific persons.

GRAIN CARGOES.—14. Stowage of cargo of grain, &c.

DECK CARGOES.—15. Space occupied by certain deck cargo to be liable to dues. 16. Entry of deck cargo in official log.

DECK AND LOAD-LINES.—17. Marking of deck-lines. 18. Marking of load-line. 19. Penalty for offences in relation to marks on ships.

INVESTIGATIONS INTO SHIPPING CASUALTIES.—20. Appointment, duties, and powers of Wreck Commissioners for investigating Shipping casualties. 21. Assessors and rules of procedure on formal investigations into Shipping casualties. 22. Power for Wreck Commissioner to institute examination with respect to ships in distress under 17 and 18 Vict., c. 104, s. 448. 23. Power to hold inquiries or formal investigations as to stranded and missing ships.

TRAINING-SHIPS.—24. Contribution from Mercantile Marine Fund to training-ships.

CERTIFICATES OF HEALTH.—25. Expenses incurred for seamen left abroad who have been engaged without certificates of health.

MISCELLANEOUS.—26. Enforcing detention of ship. 27. Ship's Managing Owner or Manager to be registered. 28. Fees, salaries, and costs. 29. Legal proceedings in case of offence. 30. Application of Act to Scotland. 31. Application of Act to Ireland.

REPEAL.—32. Repeal of Acts.

SCHEDULE.

A BILL TO AMEND THE MERCHANT SHIPPING ACTS.

Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows :—

PRELIMINARY.

SHORT TITLE.

1. This Act may be cited as the Merchant Shipping Act, 1876.

CONSTRUCTION OF ACT.

2. This Act shall be construed as one with the Merchant Shipping Act, 1854, and the Acts amending the same ; and the said Acts, and this Act may be cited collectively as the Merchant Shipping Acts, 1854 to 1876.

UNSEAWORTHY SHIPS.

SENDING UNSEAWORTHY SHIP TO SEA A MISDEMEANOUR.

3. Every person who sends or attempts to send, or is party to sending or attempting to send a ship to sea in such unseaworthy state that the life of any person is likely to be thereby endangered, and the Managing Owner of any British ship so sent to sea from any port of the United Kingdom, shall be guilty of a misdemeanour, unless he proves that he used all reasonable means to ensure her being sent to sea in a seaworthy state, or that her going to sea in such unseaworthy state was, under the circumstances, reasonable and justifiable ; and, for the purpose of giving such proof, he may give evidence in the same manner as any other witness.

Every Master of a British ship who knowingly takes the same to sea in such unseaworthy state that the life of any person is likely to be thereby endangered shall be guilty of a misdemeanour, unless he proves that her going to sea in such unseaworthy state was, under the circumstances, reasonable and justifiable, and for the purpose of giving such proof he may give evidence in the same manner as any other witness.

A prosecution under this section shall not be instituted except by or with the consent of the Board of Trade.

A misdemeanour under this section shall not be punishable upon summary conviction.

OBLIGATION OF SHIPOWNER TO CREW WITH RESPECT TO USE OF REASONABLE EFFORTS TO SECURE SEAWORTHINESS.

4. In every contract of service, express or implied, between the Owner of a ship and the Master or any Seaman thereof, and in every instrument of apprenticeship whereby any person is bound to serve as an Apprentice on board any ship, there shall be implied, notwithstanding any agreement to the contrary, an obligation on the Owner of the ship, that the Owner of the ship, and the Master, and every agent charged with the loading of the ship, or the preparing thereof for sea, or the sending thereof to sea, shall use all reasonable means to insure the

seaworthiness of the ship for the voyage at the time when the voyage commences, and to keep her in a seaworthy condition for the voyage during the same.

POWER TO DETAIN UNSAFE SHIPS AND PROCEDURE FOR SUCH DETENTION.

5. Where a British ship is, by reason of the defective condition of her hull, equipments, or machinery, or by reason of overloading or improper loading, unfit to proceed to sea without serious danger to human life, having regard to the nature of the service for which she is intended, any such ship (hereinafter referred to as "unsafe") may be provisionally detained for the purpose of being surveyed, and either finally detained or released as follows :—

- (1.) The Board of Trade, if they have reason to believe on complaint, or otherwise, that a British ship is unsafe, may provisionally order the detention of the ship for the purpose of being surveyed.
- (2.) When a ship has been provisionally detained the Board of Trade may, if they think fit, appoint some competent person or persons to survey the ship and report thereon to the Board.
- (3.) The Board of Trade, on receiving the report, may either order the ship to be released or, if in their opinion the ship is unsafe, may order her to be finally detained, either absolutely, or until the performance of such conditions with respect to the execution of repairs or alterations, or the unloading or reloading of cargo, as the Board think necessary for the protection of human life, and may from time to time vary or add to any such order.
- (4.) Before the order for final detention is made, a copy of the report shall be served upon the Master of the ship, and within three days after such service the Owner or Master of the ship may appeal in the prescribed manner to the Court of Survey (hereinafter mentioned) for the port or district where the ship is detained.
- (5.) Where a ship has been provisionally detained on the ground that she is unsafe by reason of overloading, the Owner or Master of the ship may, within twenty-four hours after the service of the order on the Master, appeal in the prescribed manner to the Court of Survey for the port or district where the ship is detained.
- (6.) Where a ship has been provisionally detained on the ground that she is unsafe by reason of overloading, the Owner or Master of the ship may, in lieu of appealing to the Court of Survey, require that the person appointed by the Board of Trade to survey the ship shall be accompanied by such person as the

Owner or Master may select out of the list of Assessors for the Court of Survey (nominated as hereinafter mentioned), and in such case if the Surveyor and Assessor agree, the Board of Trade shall cause the ship to be detained or released accordingly, but if they differ, the Board of Trade may act as if the requisition had not been made, and the Owner and Master shall have the like appeal touching the report of the Surveyor, as is before provided by this Section.

- (7.) Where a ship has been provisionally detained, the Board of Trade may, at any time, if they think it expedient, refer the matter to the Court of Survey for the port or district where the ship is detained.
- (8.) The Board of Trade may at any time, if satisfied that a ship detained under this Act is not unsafe, order her to be released either upon or without any conditions.
- (9.) For the better execution of this section, the Board of Trade may from time to time appoint a sufficient number of fit Officers, and may remove any of them.
- (10.) Any Officer so appointed (in this Act referred to as a Detaining Officer) shall have the same power as the Board of Trade have under this section of provisionally ordering the detention of a ship for the purpose of being surveyed, and of appointing a person or persons to survey her; and if he thinks that a ship so detained by him is not unsafe may order her to be released.
- (11.) A Detaining Officer shall forthwith report to the Board of Trade any order made by him for the detention or release of a ship.

CONSTITUTION OF COURT OF SURVEY FOR APPEALS.

6. A Court of Survey for a port or district shall consist of a Judge sitting with two Assessors.

The Judge shall be such person as may be summoned for the case, in accordance with the rules made under this Act, out of a list (from time to time) approved for the port or district by one of Her Majesty's principal Secretaries of State, in this Act referred to as a Secretary of State, of Wreck Commissioners appointed under this Act, Stipendiary or Metropolitan Police Magistrates, Judges of County Courts, and other fit persons; but in any special case in which the Board of Trade think it expedient to appoint a Wreck Commissioner, the Judge shall be such Wreck Commissioner.

The Assessors shall be persons of Nautical, engineering or other special skill and experience; one of them shall be appointed by the Board of Trade, either generally or in each case, and the other shall be summoned in accordance with the rules under this Act by the Registrar

of the Court, out of a list of persons periodically nominated for the purpose by the Local Marine Board of the port, or, if there is no such Board, by a body of local Shipowners or Merchants approved for the purpose by a Secretary of State, or, if there is no such list, shall be appointed by the Judge.

Such County Court Registrar, or other fit person as a Secretary of State may from time to time appoint, shall be the Registrar of the Court, and shall, on receiving notice of an appeal or a reference from the Board of Trade, immediately summon the Court in the prescribed manner to meet forthwith.

POWER AND PROCEDURE OF SURVEY.

7. With respect to the Court of Survey, the following provisions shall have effect :—

- (1.) The case shall be heard in open Court.
- (2.) The Judge and each Assessor may survey the ship, and shall have for the purposes of this Act all the powers of an Inspector appointed by the Board of Trade under the Merchant Shipping Act, 1854.
- (3.) The Judge may appoint any competent person or persons to survey the ship and report thereon to the Court.
- (4.) The Judge shall have the same power as the Board of Trade have to order the ship to be released or finally detained, but unless one of the Assessors concurs in an order for the detention of the ship, the ship shall be released.
- (5.) The Owner and Master of the ship and any person appointed by the Owner or Master, and also any person appointed by the Board of Trade, may attend at any inspection or survey made in pursuance of this section.
- (6.) The Judge shall send to the Board of Trade the prescribed report, and each Assessor shall either sign the report or report to the Board of Trade the reasons for his dissent.

RULES FOR PROCEDURE OF COURT OF SURVEY, &c.

8. The Lord Chancellor of Great Britain may from time to time (with the consent of the Treasury so far as relates to fees), make, and when made revoke, alter, and add to general rules to carry into effect the provisions of this Act with respect to a Court of Survey, and in particular with respect to the summoning of and procedure before the Court, the requiring security on an appeal for costs and damages, the amount and application of fees, and the publication of the rules.

All such rules while in force shall have effect as if enacted in this Act, and the expression "prescribed" in the provisions of this Act relating to the detention of ships or Court of Survey means prescribed by such rules.

LIABILITY OF BOARD OF TRADE AND SHIPOWNERS FOR COSTS AND DAMAGES.

9. If it appears that there was not reasonable and probable cause for the provisional detention of a ship under this Act, the Board of Trade shall be liable to pay to the Owner of the ship his costs of and incidental to the detention and survey of the ship, and also compensation for any loss or damage sustained by him by reason of the detention or survey.

If a ship is finally detained under this Act, or if it appears that there was reasonable and probable cause for the provisional detention of a ship under this Act, the Owner of the ship shall be liable to pay to the Board of Trade their costs of and incidental to the detention and survey of the ship, and those costs shall, without prejudice to any other remedy, be recoverable as Salvage is recoverable.

For the purposes of this Act, the costs of and incidental to any proceedings before a Court of Survey, and a reasonable amount in respect of the remuneration of the Surveyor or Officer of the Board of Trade shall be deemed to be part of the costs of the detention and survey of the ship, and any dispute as to the amount of costs under this Act may be referred to one of the masters or registrars of the Supreme Court of Judicature, who, on request made to him for that purpose by the Board of Trade, shall ascertain and certify the proper amount of such costs.

An action for any costs or compensation payable by the Board of Trade under this section may be brought against the Secretary thereof by his official title, as if he were a corporation sole.

POWER TO REQUIRE FROM COMPLAINANT SECURITY FOR COSTS.

10. Where a complaint is made under the Board of Trade or a Detaining Officer that a British ship is unsafe, the Board or Officer may, if they or he think fit, require the complainant to give security to the satisfaction of the Board for the costs and compensation which he may become liable to pay as hereinafter mentioned.

Provided that where the complaint is made by one-fourth of the Seamen belonging to the ship, and is not in the opinion of the Board or Officer frivolous or vexatious, such security shall not be required, and the Board or Officer shall, if the complaint is made in sufficient time before the sailing of the ship, take proper steps for ascertaining whether the ship ought to be detained under this Act.

Where a ship is detained in consequence of any complaint, and it appears that the complaint was made without reasonable and probable cause, the complainant shall be liable to pay to the Board of Trade all such costs and compensation as the Board incur or are liable to pay in respect of the detention and survey of the ship.

SUPPLEMENTAL PROVISIONS AS TO DETENTION OF SHIP.

11. (1.) A Detaining Officer shall have for the purpose of his duties under this Act the same powers as an Inspector appointed by the Board of Trade under the Merchant Shipping Act, 1854.
- (2.) A copy of an order of the detention of a ship, provisional or final, and of any order varying the same, shall be served as soon as may be on the Owner or Master of the ship, and any such copy, and a copy of any report or other document for the purposes of this Act, may be served on the Master of the ship in manner provided by Section 522 of the Merchant Shipping Act, 1854.
- (3.) When a ship has been detained under this Act, she shall not be released by reason of her British register being closed.
- (4.) For the purposes of a survey of a ship under this Act, any person authorised to make the same may go on board the ship and inspect the same and every part thereof, and the machinery, equipments, and cargo, and may require the unloading or removal of any cargo, ballast, or tackle.
- (6.) The provisions of the Merchant Shipping Act, 1854, with respect to persons who wilfully impede an Inspector, or disobey a requisition or order of an Inspector, shall apply as if those provisions were herein enacted, with the substitution for the Inspector of any Judge, Assessor, Officer, or Surveyor who under this Act has the same powers as an Inspector or has authority to survey a ship.

APPEAL ON SURVEY OF PASSENGER STEAMER AND EMIGRANT SHIP.

APPEAL TO COURT OF SURVEY ON SURVEY OF PASSENGER STEAMER OR
EMIGRANT SHIP.

12. Whereas by Section 309 of the Merchant Shipping Act, 1854, and enactments amending the same, the Owner of a passenger steamer as defined in that Act is required to cause the same to be surveyed by a Shipwright Surveyor and an Engineer Surveyor, and those Surveyors are required to give declarations of certain particulars with respect to the sufficiency or conformity with the Act of the ship and equipments, and to the limits beyond the ship is not fit to ply, and to the number of passengers which the ship is fit to carry, and of other particulars in the said section mentioned, and the Board of Trade under Section 312 of the same Act, issue a certificate upon such declarations, and the passenger steamer cannot lawfully proceed to sea without obtaining such certificate ;

And whereas under Sections 11 and 50 of the Passengers' Act, 1855, and the enactments amending the same, a passenger ship within the meaning of those Acts (hereinafter referred to as an emigrant ship)

cannot lawfully proceed to sea without a certificate of clearance from an Emigration Officer, or other officer in those sections mentioned, showing that all the requirements of the said Acts have been complied with, and that the ship is in the officer's opinion seaworthy, and that the passengers and Crew are in a fit state to proceed to sea, and otherwise as therein mentioned ;

And whereas it is expedient to give in the said cases such appeal as hereinafter mentioned : Be it, therefore, enacted that—

If a Shipowner feels aggrieved

(1.) by a declaration of a Shipwright Surveyor or an Engineer Surveyor respecting a passenger steamer under the above-recited enactments, or by the refusal of a Surveyor to give the said declaration ; or

(2.) by the refusal of a certificate of clearance for an emigrant ship under the above-recited enactments,

the Owner may appeal in the prescribed manner to the Court of Survey for the Port or district where the ship for the time being is.

On such appeal the Judge of the Court of Survey shall report to the Board of Trade on the question raised by the appeal, and the Board of Trade, if satisfied that the requirements of the report and the other provisions of the said enactment have been complied with, may, in the case of a passenger steamer, give their certificate under Section 312 of the Merchant Shipping Act, 1854, and in the case of an emigrant ship give, or direct the Emigration or other officer to give, a certificate of clearance under the above-mentioned enactments.

Subject to any order made by the Judge of the Court of Survey, the costs of and incidental to an appeal under this section shall follow the event.

Subject, as aforesaid, the provisions of this Act with respect to the Court of Survey and appeals thereto, so far as consistent with the tenour thereof, shall apply to the Court of Survey when acting under this section, and to appeals under this section.

REFERENCE IN DIFFICULT CASES TO SCIENTIFIC PERSONS.

13. If the Board of Trade are of opinion that an appeal under this section involves a question of scientific difficulty or important principle, they may refer the matter to such one or more out of a list of scientific referees from time to time approved by a Secretary of State, as may appear to them to possess the special qualifications necessary for the particular case, and thereupon the appeal shall be determined by the referee or referees, instead of by the Court of Survey.

The Board of Trade, if the appellant in any appeal so require and give security to the satisfaction of the Board to pay the costs of and

incidental to the reference, shall refer that appeal to a referee or referees so selected as aforesaid.

The referee or referees shall have the same powers as a Judge of the Court of Survey.

GRAIN CARGOES.

STOWAGE OF CARGO OF GRAIN, &c.

14. No cargo of which more than one-third consists of any kind of grain, corn, rice, paddy, pulse, seeds, nuts, or nut kernels shall be carried on board any British ship, unless such grain, corn, rice, paddy, pulse, seeds, nuts, or nut kernels be contained in bags, sacks, or barrels, or secured from shifting by boards, bulkheads, or otherwise.

If the Master of any British ship knowingly allows any cargo or part of a cargo to be shipped therein for carriage contrary to the provisions of this section, he shall for every such offence incur a penalty not exceeding, if he is convicted on summary conviction, *one hundred pounds*, and if he is convicted on indictment *five hundred pounds*.

DECK CARGOES.

SPACE OCCUPIED BY CERTAIN DECK CARGO TO BE LIABLE TO DUES.

15. If any ship, British or foreign, trading beyond the limits of the United Kingdom and Isle of Man, carries as deck cargo, that is to say, in any uncovered space upon deck, or in any covered space not included in the cubical contents forming the ship's registered tonnage, timber, stores, or other goods (not being exempted goods hereinafter mentioned), all dues payable on the ship's tonnage at the commencement, during the progress, or at the conclusion of her voyage shall be payable as if there were added to the ship's registered tonnage the tonnage of the space occupied by such goods.

The space so occupied shall be deemed,—

- (1.) If the goods are carried in a covered-in space, to be the whole of that space ; and
- (2.) If the goods are not carried in a covered-in space, to be the space limited by the area occupied by the goods and by straight lines inclosing a rectangular space, sufficient to include the goods.

The tonnage of such space shall be ascertained by an Officer of the Board of Trade or of Customs, in manner directed by Sub-section 4 of Section 21 of the Merchant Shipping Act, 1854, and when so ascertained shall be entered by him in the ship's official log-book.

Exempted goods are animals, fresh fish, fresh meat, vegetables, passengers' luggage, empty packing cases, dangerous goods subject to the provisions of the Merchant Shipping Act, 1878, and such other goods as may be declared by general orders of the Board of Trade to be such

as can be only carried on deck, or can be carried on deck more safely than below.

ENTRY OF DECK CARGO IN OFFICIAL LOG.

16. If any British foreign-going ship proceeding to sea from any port carries as deck cargo timber, stores, or other goods whatever, the Master of the ship shall make an entry (which shall be receivable in evidence) in the appropriate place in the ship's official log-book, showing the weight, bulk, and description of all the deck cargo on board the ship at the time of her proceeding to sea, and shall forthwith deliver or send a copy of the entry (in a form provided by the Board of Trade):—

- (1.) If the port is in the United Kingdom, to the principal officer of Customs at the port; and
- (2.) If the port is in a British possession, to the principal officer of Customs at the port, or other officer appointed by the governor of that possession for the purpose; and
- (3.) If the port is a foreign port, to the British Consular officer at the port.

Any Master who makes default in complying with the provisions of this section shall incur a penalty not exceeding £20.

Any person who makes any false entry in the official log-book of a ship, in reference to deck cargo, shall be guilty of a misdemeanour.

DECK AND LOAD LINES.

MARKING OF DECK-LINES.

17. Every British ship (except ships employed solely in the Coasting Trade, or in fishing and pleasure yachts) shall be permanently and conspicuously marked with lines of not less than twelve inches in length and one inch in breadth, painted longitudinally on each side amidships, or as near thereto as is practicable, and indicating the position of each deck which is above water.

The upper edge of each of these lines shall be level with the upper side of the deck plank next the waterway at the place of marking.

The lines shall be white or yellow on a dark ground, or black on a light ground.

MARKING OF LOAD-LINE.

18. With respect to the marking of a load-line on British ships, the following provisions shall have effect:—

- (1.) The Owner of every British ship (except ships employed solely in the Coasting Trade, and in fishing and pleasure yachts) shall, before entering his ship outwards from any port in the United Kingdom

upon any voyage for which he is required so to enter her, or, if that is not practicable, as soon after as may be, mark upon each of her sides amidships, or as near thereto as is practicable, in white or yellow on a dark ground, or in black on a light ground, a circular disc, twelve inches in diameter, with a horizontal line eighteen inches in length, drawn through its centre.

- (2.) The centre of this disc shall indicate the maximum load-line in salt water, to which the Owner intends to load the ship for that voyage.
- (3.) He shall also, upon so entering her, insert in the form of entry delivered to the Collector, or other principal officer of Customs, a statement in writing of the distance in feet and inches between the centre of this disc and the upper edge of each of the lines indicating the position of the ship's decks which is above that centre.
- (4.) If default is made in delivering this statement in the case of any ship, any officer of Customs may refuse to enter the ship outwards :
- (5.) The Master of the ship shall enter a copy of this statement in the agreement with the Crew before it is signed by any member of the Crew, and no Superintendent of any Mercantile Marine-office shall proceed with the engagement of the Crew until this entry is made :
- (6.) The Master of the ship shall also enter a copy of this statement in the official log-book :
- (7.) When a ship has been marked as by this section required, she shall be kept so marked until her next return to a port of discharge in the United Kingdom.

PENALTY FOR OFFENCES IN RELATION TO MARKS ON SHIPS.

19. Any Owner or Master of a British ship who neglects to cause his ship to be marked as by this Act required, or to keep her so marked, and any person who conceals, removes, alters, defaces, or obliterates, or suffers any person under his control to conceal, remove, alter, deface, or obliterate, any of the said marks, except in the event of the particulars thereby denoted being lawfully altered, or except for the purpose of escaping capture by an enemy, shall for each offence incur a penalty not exceeding *one hundred pounds*.

If any of the marks required by this Act are in any respect inaccurate, so as to be likely to mislead, the Owner of a ship shall incur a penalty not exceeding *one hundred pounds*.

INVESTIGATIONS INTO SHIPPING CASUALTIES.

APPOINTMENT, DUTIES, AND POWERS OF WRECK COMMISSIONERS FOR
INVESTIGATING SHIPPING CASUALTIES.

20. For the purpose of rendering investigations into Shipping casualties more speedy and effectual, it shall be lawful for the Lord Chancellor of Great Britain to appoint, from time to time, some fit person or persons to be Wreck Commissioners, so that there shall not be more than three such Commissioners at any one time.

It shall be lawful for the Lord Chancellor to remove any Wreck Commissioner for inability or misbehaviour, or other sufficient cause.

It shall be the duty of a Wreck Commissioner, at the request of the Board of Trade, to hold any formal investigation into a loss, abandonment, damage, or casualty (in this Act called a Shipping casualty), under the eighth part of the Merchant Shipping Act, 1854, and for that purpose he shall have the same jurisdiction and powers as are thereby conferred on two Justices, and all the provisions of the Merchant Shipping Acts, 1854 to 1876, with respect to investigations conducted under the eighth part of the Merchant Shipping Act, 1854, shall apply to investigations held by a Wreck Commissioner.

ASSESSORS AND RULES OF PROCEDURE ON FORMAL INVESTIGATIONS INTO
SHIPPING CASUALTIES.

21. The Wreck Commissioner, Justice, or other authority holding a formal investigation into a Shipping casualty shall hold the same with the assistance of an Assessor or Assessors of Nautical, engineering or other special skill or knowledge, to be appointed by the Commissioners, Justices, or authority out of a list of persons for the time being approved for the purpose by a Secretary of State.

Each Assessor shall either sign the report made on the investigation, or report to the Board of Trade his reasons for his dissent therefrom.

The Lord Chancellor of Great Britain may, from time to time, with the consent of the Treasury so far as relates to fees, make, and when made revoke, alter, and add to general rules for carrying into effect the enactments relating to formal investigations into Shipping casualties, and in particular with respect to the summoning of Assessors, the procedure, the parties the persons allowed to appear, the notice to such parties and persons, or to persons affected, and the amount and application of fees.

All such rules, while in force, shall have effect as if enacted in this Act.

Every formal investigation into a Shipping casualty shall be conducted in such manner that if a charge is made against any person that person shall have an opportunity of making a defence.

POWER FOR WRECK COMMISSIONER TO INSTITUTE EXAMINATION WITH RESPECT TO SHIPS IN DISTRESS UNDER 17 AND 18 VICT., c. 104, s. 448.

22. A Wreck Commissioner may at the request of the Board of Trade institute the same examination as a Receiver of Wreck under Section 448 of the Merchant Shipping Act, 1854, and shall for that purpose have the powers by that Section conferred on a Receiver of Wreck.

POWER TO HOLD INQUIRIES OR FORMAL INVESTIGATIONS AS TO STRANDED AND MISSING SHIPS.

23. In the following cases :—

- (1.) Whenever any ship on or near the coasts of the United Kingdom or any British ship elsewhere has been stranded or damaged, and any witness is found at any place in the United Kingdom, or
- (2.) Whenever a British ship has been lost, or is supposed to have been lost, and any evidence can be obtained in the United Kingdom as to the circumstances under which she proceeded to sea or was last heard of,

the Board of Trade (without prejudice to any other powers) may, if they think fit, cause an Inquiry to be made or formal investigation to be held, and all the provisions of the Merchant Shipping Acts, 1854 to 1876, shall apply to any such Inquiry or investigation as if it had been made or held under the eighth part of the Merchant Shipping Act, 1854.

TRAINING-SHIPS.

CONTRIBUTION FROM MERCANTILE MARINE FUND TO TRAINING-SHIPS.

24. Whenever it appears to the Board of Trade that the receipts of the Mercantile Marine Fund on the account of fees paid to that fund for the engagement and discharge of Seamen exceed the sums paid out of that fund for the expense of Mercantile Marine Officers, the Board of Trade may to the extent of that excess contribute to the managers of any school ship or other institution for training boys to the Sea Service such sum and upon such conditions as the Board of Trade think fit, for boys educated therein who obtain employment in British ships, and are in physical capacity, age, character, and acquirements qualified to serve in the Merchant Service and Royal Naval Reserve.

CERTIFICATES OF HEALTH.

EXPENSES INCURRED FOR SEAMEN LEFT ABROAD WHO HAVE BEEN ENGAGED WITHOUT CERTIFICATES OF HEALTH.

25. Every notice given by the Owner or Master of a ship in a Mercantile Marine Office, of his intention to engage a Crew, shall specify whether he intends to apply to have his Crew reported by a Medical Inspector of

Seamen, in pursuance of Section 10 of the Merchant Shipping Act, 1867, as in a fit state for duty at sea; and every agreement with a Crew of any ship shall specify whether such report has or has not been made with respect to each member of the Crew.

Where any such report has not been made with respect to any Seaman and such Seaman is left behind Sick, whether discharged or not, at any place out of the United Kingdom, all expenses which are paid out of moneys provided by Parliament for his medical treatment, subsistence, necessary clothing, conveyance home, and burial (in case he dies before reaching home) shall be a charge on the ship, and may be recovered as a debt to Her Majesty from the Master of the ship, or from the Owner of the ship for the time being, in the same manner as the like expenses may be recovered under Section 213 of the Merchant Shipping Act, 1854.

MISCELLANEOUS.

ENFORCED DETENTION OF SHIP.

26. Where under the Merchant Shipping Acts, 1854 to 1876, or any of them, a ship is authorised or ordered to be detained, any Commissioned Officer on full pay in the Naval or Military Service of Her Majesty, or any Officer of the Board of Trade or Customs, or any British Consular Officer may detain the ship, and if the ship after such detention or after service on the Master of any notice of or order for such detention proceeds to sea before it is released by competent authority, the ship shall be liable to be forfeited to Her Majesty, and the Master thereof shall be guilty of a misdemeanour.

Where a ship so proceeding to sea takes to sea when on board thereof in the execution of his duty, any Officer authorised to detain the ship, or any Surveyor or Officer of the Board of Trade, or Customs, the Owner and Master of the ship shall be liable to pay to every Officer and Surveyor so taken to sea all expenses of and incidental to his being so taken to sea, and also compensation at the rate of *ten pounds* for every day until the Officer or Surveyor returns, and such expenses and compensation shall, without prejudice to any other remedy, be recoverable as Salvage is recoverable.

The forfeiture of a ship under this section may be enforced and the ship liable to be forfeited under this section may be dealt with in like manner as if it were forfeited under the Acts for the time being in force relating to the Customs.

Any person who obstructs the service of any notice or order for detention on the Master of a ship shall incur a penalty not exceeding *ten pounds*, and, if the Owner or Master of the ship is party or privy to such obstruction, he shall be guilty of a misdemeanour.

SHIP'S MANAGING OWNER OR MANAGER TO BE REGISTERED.

27. The name of the Managing Owner for the time being of every British ship registered at any port or place in the United Kingdom shall be registered at the Custom House of the ship's port of registry.

Where there is not a Managing Owner, there shall be so registered the name of the Ship's Husband or other person to whom the management of the ship is entrusted by or on behalf of the Owner, and any person whose name is so registered shall, for the purposes of the Merchant Shipping Acts, 1854 to 1876, be under the same obligation and subject to the same liabilities as if he were the Managing Owner.

If default is made in complying with this section the ship may be detained until compliance.

FEES, SALARIES, AND COSTS.

28. On and after the first day of January, one thousand eight hundred and seventy-seven, all fees payable in respect of the survey or measurement of ships under the Merchant Shipping Acts, 1854 to 1876, or in respect of any services performed by any person employed under the authority of the Passengers' Act, 1855, shall continue to be paid to a superintendent of a Mercantile Marine Office, at such times and in such manner as the Board of Trade from time to time direct, but shall be paid into the receipt of Her Majesty's Exchequer in such manner as the Treasury from time to time direct, and shall be carried to and form part of the Consolidated Fund of the United Kingdom.

On and after the same day the salaries of all Surveyors appointed under the Merchant Shipping Acts, 1854 to 1876, and so much of the expenses connected with the survey and measurement of ships under those Acts, and of the salaries and expenses of persons employed under the Passengers' Act, 1855, as has heretofore been paid out of the Mercantile Marine Fund, shall be paid out of moneys provided by Parliament, and the Treasury shall have the like control over such salaries and expenses as has heretofore been vested in the Board of Trade.

There may be paid out of moneys provided by Parliament, to any Wreck Commissioner, Judge of a Court of Survey, Assessor, Registrar of a Court of Survey, Detaining Officer, Scientific Referee, and other Officer or person appointed under this Act, such salary or remuneration (if any) as the Treasury from time to time direct.

There may be paid out of moneys provided by Parliament all costs and compensation payable by the Board of Trade in pursuance of this Act.

LEGAL PROCEEDINGS IN CASE OF OFFENCES.

29. For the purpose of punishment, jurisdiction, and legal proceedings, an offence under this Act shall be deemed to be an offence under the Merchant Shipping Act, 1854.

APPLICATION OF ACT TO SCOTLAND.

30. In the application of this Act to Scotland, "Judge of a County Court" shall be deemed to include a sheriff and sheriff substitute, and "Registrar of a County Court" shall be deemed to include sheriff clerk, and "a Master of the Supreme Court of Judicature" shall mean the Queen's and Lord Treasurer's Remembrancer.

APPLICATION OF ACT TO IRELAND.

31. In the application of this Act to Ireland, "Judge of a County Court" shall be deemed to include "Chairman of a County," and "Stipendiary Magistrate" shall be deemed to include any of the Justices of the Peace in Dublin metropolis and any resident Magistrate, and "a Master of the Supreme Court of Judicature" shall mean one of the Masters of the Court of Queen's Bench.

REPEAL.

REPEAL OF ACTS.

32. On and from the passing of this Act the Acts specified in the first part of the Schedule hereto, and on and from the first day of January, one thousand eight hundred and seventy-seven, the Acts specified in the second part of the Schedule hereto shall be repealed to the extent in the third column of that Schedule mentioned: Provided that any officer appointed in pursuance of any such enactment shall be deemed to have been appointed under this Act, and this repeal shall not affect—

- (1.) Anything done or suffered made under any enactment hereby repealed; nor
- (2.) Any right, power, duty, obligation, or liability acquired, imposed, accrued, or incurred under any enactment hereby repealed; nor
- (3.) Any penalty or punishment incurred in respect of any offence against any enactment hereby repealed; nor
- (4.) Any legal proceeding in respect of any such right, duty, obligation, liability, penalty, or punishment, and any such legal proceeding may be carried on as if this Act had not passed.

SCHEDULE.

PART I.—ENACTMENTS REPEALED FROM PASSING OF ACT.

Session and Chapter.	Title.	Extent of Repeal.
17 & 18 Vict., c. 104	The Merchant Shipping Act, 1854	Section four hundred and thirty-four, and Section four hundred and thirty-seven from "and in case he so requires" inclusive to the end of Section.
34 & 35 Vict., c. 110	The Merchant Shipping Act, 1871	Section eleven.
36 & 37 Vict., c. 85	The Merchant Shipping Act, 1873	Sections twelve, thirteen, and fourteen.
38 & 39 Vict., c. 88	The Merchant Shipping Act, 1875	The whole Act.

PART II.—ENACTMENTS REPEALED FROM 1ST JANUARY, 1877.

Session and Chapter.	Title.	Extent of Repeal.
17 & 18 Vict., c. 10	The Merchant Shipping Act, 1854	Sub-section (2) of Section four hundred and eighteen.
35 & 36 Vict., c. 73	The Merchant Shipping Act, 1872	Section fourteen.

MARITIME LAWS.

A BILL TO AMEND THE LAW RELATING TO INSURANCES AND OTHER MARITIME CONTRACTS.

Be it enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows ; (that is to say),

PRELIMINARY.

SHORT TITLE.

1. This Act may be cited as The Maritime Contracts Act, 1876.

COMMENCEMENT.

2. This Act shall commence and have effect from and immediately after the *Thirty-first day of December, one thousand eight hundred and seventy-six.*

INTERPRETATION.

3. In this Act—"Ship" includes every description of vessel used in navigation not propelled by oars, and every part of a ship, or of her equipments or machinery, and a share or interest in a ship: "Contract

of insurance," or "insurance," includes agreement for mutual insurance, or an insurance effected thereunder.

CONTRACT FOR CARRIAGE OF GOODS OR PERSONS.

IMPLIED WARRANTY IN BILL OF LADING, &C., FOR SEAWORTHINESS.

4. In every contract made after the commencement of this Act for the carriage of goods or persons by sea, there shall, by virtue of this Act, be implied a warranty by the Shipowner, Charterer, or other person contracting, that the ship is seaworthy at the commencement of the voyage to be performed under the contract.

Any contract, or part or term of a contract, made after the commencement of this Act, contrary to or inconsistent with that warranty, shall, as far as it is so contrary or inconsistent, be void to all intents.

INSURANCE AGAINST EFFECT OF WARRANTY VOID.

5. An insurance against any risk or liability consequent on the warranty aforesaid shall be void to all intents.

SAVING FOR LIMITATION OF LIABILITY.

6. Nothing in the foregoing provisions shall prejudicially affect the provisions of section fifty-four of the Merchant Shipping Act Amendment Act, 1862, relating to the limitation of a Shipowner's liability.

SAVING FOR EXISTING WARRANTY, &C.

7. Nothing in the foregoing provisions shall derogate from any warranty, undertaking, or obligation on the part of a Shipowner, Charterer, or other person contracting for the carriage of goods or persons by sea, that would have existed if this Act had not been passed.

MARINE INSURANCE.

OPENING OF VALUATION IN POLICY ON SHIP OR FREIGHT.

8. Where in an action on a contract of insurance on ship or freight made after the commencement of this Act by a valued policy, it appears to the Court, at any stage of the action, whether application in this behalf is made by the defendant or not, that there is ground to believe that the valuation is unreasonably in excess of the real value of the subject-matter of insurance, the Court may, if it thinks fit, direct an inquiry before referees, on such terms and conditions respecting costs and other matters as to the Court seem just, to ascertain what would have been the value of the interest of the insured if the policy had been an open one.

If on the report of the referees it appears to the Court that the valuation is unreasonably in excess of the real value of the subject-matter of

insurance, then the insured shall not be entitled to recover in the action more than the value as ascertained by the referees.

AMOUNT RECOVERABLE ON POLICY ON FREIGHT.

9. Where there is an insurance on freight effected after the commencement of this Act, the insured shall not be entitled to recover in respect of any freight lost without allowing for the proportion of expenses remaining, at the time of the loss, to be incurred in earning such freight.

The amount to be so allowed shall be ascertained or estimated as the Court, in any action on the contract, directs.

CHARGES IN RESPECT OF FREIGHT TO BE DEEMED DOUBLY INSURED.

10. Where an insurance on freight effected after the commencement of this Act covers cost of wages, outfit, and other charges, and that cost is also insured by any other policy effected by the same person, that cost shall be deemed to be the subject of a double insurance.

So much of the cost aforesaid as has hitherto been covered by an open policy on ship shall, in case of a policy on ship, whether open or valued, effected after the commencement of this Act, be deemed to be covered by that policy, unless expressly excluded thereby.

UNSEAWORTHINESS IN CASE OF TIME POLICY.

11. Where an insurance on behalf of a Shipowner on ship or freight by time is effected, after the commencement of this Act, the insured shall not be entitled to recover in respect of any loss occurring, if the loss would not have occurred but for the unseaworthiness of the ship, and that unseaworthiness existed at the time of the ship's leaving the port or place of safety (if any) in which she was at the commencement of the risk, or the port or place of safety in which she last was before the commencement of the risk, and could have been prevented by the exercise of reasonable care on the part of the Owner or of the Master of the ship, or of any Agent of the Owner, charged, as such, with the loading of the ship, or with the sending of her to sea from that port or place.

For the purposes of this section, unseaworthiness arising from the defective condition of the hull, equipments, or machinery of the ship, or by reason of overloading or improper loading, shall alone be deemed unseaworthiness.

SAVING FOR EXISTING WARRANTY.

12. Nothing in this Act shall derogate from the warranty of seaworthiness implied in any Policy of Insurance.

REPORT TO THE PRESIDENT OF THE BOARD OF TRADE ON THE LEGISLATION CONCERNING MERCHANT SHIPS AND SEAMEN DURING THE LAST FORTY YEARS, 1835-1875.*

BY T. H. FARRER.

PURPOSE OF THIS REPORT.

STATEMENTS have been recently made in Parliament and repeated elsewhere to the effect that our merchant sailors have been neglected, and that with free trade has come in a system of "laissez faire" with respect to British shipping and seamen. The fact that such statements can be made, renders it worth while to call your attention to what has been done by Parliament and by Government for British seamen and shipping during the last 40 years; with the view of showing that if things have not turned out well it has not been for want of legislative and administrative interference. With what has been done since the repeal of the Navigation Laws in 1849 there is probably no one now alive so well able to speak as myself, since I was first employed in 1850 by the late Lord Taunton, then Mr. Labouchere, to draw a Bill concerning the Merchant Service and have ever since been at the Board of Trade, and for a great part of that time acted as Secretary to the Marine Department of that Board.

1836.

In 1836 a Committee was appointed to consider the causes of shipwrecks, which dealt carefully with a great variety of questions connected with merchant shipping. The facts they state, the reasoning they adopt, and the suggestions they make are instructive, viewed by the light of subsequent experience.—Committee on Shipwrecks. Parliamentary Paper, 567/36.

FACTS CONCERNING WRECKS IN 1816, 1833, 1872.

First as to the facts. Taking Lloyd's returns, the Report states (par. 5), that in the three years 1816, 1817, 1818, the number of lives lost was 2,288, or 768 per annum, and that in the three years 1833, 1834, 1835, the number of lives lost was 2,682, or 894 per annum. The Committee estimated the whole loss of life at the latter period at an average of 1,000 a year. There had therefore been some increase in the number of lives lost in the latter of the two periods referred to. If we turn to the returns showing the progress of British shipping presented annually by the Board of Trade (Parliamentary Paper, 214/75, page 11), we find that the tonnage of the British Empire, and consequently of the

* Presented to Parliament, Session 1876.

United Kingdom, which then formed, as indeed it does still, by far the greatest part of that tonnage of the Empire, had not increased between 1816 and 1835, being 2,783,933 in the former, and 2,783,761 in the latter year, so that the increase in the loss of life had become larger in the later period, not absolutely only, but in proportion to the tonnage.*

After giving the above with other statistics as to wrecks, the Report of the Committee of 1836 proceeds to enumerate what they believed to be the causes of shipwreck. I have placed these alleged causes of shipwreck in one column, and in another column opposite to them what has since happened or been done in each matter.—(1836. Committee on shipwrecks.)

Causes of Wreck as stated by the
Committee of 1836.

Subsequent Action or Events.

1. Bad system of classification at Lloyd's from 1798 to 1834, depending solely on age of ship.

1. Entirely revised in 1834, and revised at later periods. Lloyd's Register, Liverpool Register, Veritas, &c., established as separate and independent bodies.

2. Competition with foreign ship-owners, "who, from the many advantages enjoyed by them in the superior cheapness of their materials for building, equipping, and provisioning their vessels, and the lower rate of wages paid to their crews, were enabled to realize profits on terms of freight which would not even cover the expenses of British ships."

2. The last remains of protection to British Shipping were done away with, as to the foreign trade, in 1849, and as to the coasting trade, in 1854. The tonnage of the Empire was, in 1835, 2,783,761 tons, and in 1873 7,294,230 tons. During the period between 1838 and 1873 the sea-going tonnage of the United States increased only from 822,592 to 1,423,288, and that of France

* It is worthy of remark that, according to returns prepared by the same authority which prepared the returns in 1836, viz., the Committee of Lloyd's, the loss of lives in British merchant ships for the years 1870, 1871, 1872, was, of crews, 5,531, and of passengers, 385, together 5,916, or an average of nearly 2,000 a year, about twice the average number reported to have been lost in the years 1834-5 and 6.—Report of Commission on Unseaworthy Ships, C, 1027.-I, App. No. LXXX., page 769.

But the mercantile tonnage of the British Empire has increased from 2,783,761 in 1835 to 7,294,230 in 1873, or nearly threefold, and the entries and clearances, i.e., voyages, of British ships in the foreign trade of the United Kingdom has increased from 5,661,623 in 1838 to 29,647,344 in 1873, or nearly sixfold. So that, making every allowance for the imperfection of the returns and for the difficulty of comparing them at the two periods, and notwithstanding the far more complete record of losses kept in the later years, there is reason to believe that the loss of seamen's lives in British ships is much less in proportion to the trade at the present time than it was 40 years ago.—See Parliamentary Paper, 214/75, pages 4 & 11.

**Causes of Wreck as stated by the
Committee of 1836.**

Subsequent Action or Events.

from 679,863 to 1,068,031. The employment of British tonnage in the foreign trade of the United Kingdom, as shown by entries and clearances, increased from 5,661,623 in 1838 to 29,647,344 in 1873. The percentage of British as compared with foreign tonnage employed in the trade of the United Kingdom, as compared with the foreign tonnage so employed, has remained about the same, whilst the percentage of national tonnage of other countries employed in the trade of those countries has in most cases diminished. The increase of British Shipping in the more valuable portion of the trade, viz., the steam trade, shows still more favourably. The British Empire in 1873 possessed 1,825,738 tons of steam shipping, whilst (excluding the lake and river steamers of the United States), France, the United States, Holland, and Hamburgh possessed together only about 500,000 tons.—See Parliamentary paper, 215/75, pp. 5, 11, and 15.

Of so little value are the opinions and predictions of capable men when misled by false theory or prejudice!

3. Bad forms of ships arising from—

(a) Bad system of measurement for tonnage dues.

(a.) The system of measurement has been entirely remodelled under the Act of 1854, so as to express accurately (except in respect of certain deductions) the exact capacity of a ship, whatever her form.

(b) Shallow harbours to which ships must be adapted so as to be able to lie aground in them.

(b.) All, or almost all, existing harbours in England have been deepened and improved, so as to float ships of a size and draft not dreamed of in 1836, e.g., the Tyne, Clyde, Tees; and magnificent docks have been made for the largest ships at all large ports, and at many places which in 1836 were not ports at all. It is scarcely necessary to refer to Liverpool, Birkenhead, Fleetwood, Belfast, Barrow, Whitehaven, Cardiff, Newport, Gloucester, Greenock,

Cause of Wreck as stated by the
Committee of 1836.

Subsequent Action or Events.

4. Incompetency of masters and officers.

5. Drunkenness in officers and crews.

6. Marine insurance.

7. Want of harbours of refuge.

8. Imperfection of charts.

Glasgow, Aberdeen, Dundee, Leith, Shields, Sunderland, Hartlepool, Hull, Grimsby, Lowestoft, the Thames, &c., &c.

4. See below. Acts of 1850 and 1862.

5. I fear that this, though often visited with punishment, by suspension of certificate, is still a great evil.

6. Nothing has been done, but this subject has been again brought to notice by the Unseaworthy Ships Commission, and inquiries have been made as to the laws of foreign countries.—See Parl. Paper, No. 304, 1875.

7. This question has since received the greatest attention from Select Committees, Royal Commissions, and from Parliament. See below, 1836, 1840, 1845, 1857, 1858, 1859, 1861. At one time it was as much the popular remedy for wrecks as legislative regulation with shipping is now. Harbours of refuge have been constructed at Holyhead, Kingston, Portland, the Tyne. Trading harbours have been made accessible, and the natural harbours of Harwich and the Humber have been protected.

8. The hydrographer to the Admiralty supplies excellent charts. But there is still neglect in providing ships properly with them. The master is expected to do so, and he often does not. The Board of Trade have recently issued a circular on the subject, suggesting that owners should supply them.

The following are the specific remedies proposed by the Committee of 1836, and the subsequent action or event in each case :—

Proposed Remedies.

Subsequent Action or Event.

1. The formation of a Mercantile Marine Board to regulate the affairs of the Mercantile Marine, and with the following special objects.

1. Though no Board has been formed in the specific manner suggested, or with the wide and vague functions suggested by the Committee, the Board of Trade have been invested with large powers over the Mercantile Marine, and have a large and experienced staff.

Proposed Remedies.

Subsequent Action or Events.

2. The compilation and consolidation of a code of Maritime Laws.

3. Nautical improvement in hydrography, naval architecture, &c., &c.

4. Improved classification of ships.

5. Collection of information as to building, equipping, and loading ships.

6. Formation of a standard of acquirement for officers by establishment of examinations.

7. Savings bank for seamen.

8. Asylums for worn-out seamen.

9. Registry offices at which seamen's characters shall be recorded and kept.

10. Nautical schools.

11. Courts of inquiry into shipwrecks, with power to censure, and power to reward by money, medals, or otherwise.

12. Tribunals for speedy settlement of disputes.

13. Reduction and abolition of needless taxes on shipping.

14. Discouragement of drinking on board.

2. This has been done once by the Merchant Shipping Act, 1854. It has been attempted again in 1869, 1870, 1871, 1872, by the introduction of Consolidation Bills having a still wider scope than the Act of 1854.

3. This is vague. But changes and improvements have been made beyond all expectation, some due to Government, but far more to private efforts.

4. Done by Lloyd's Register and the Liverpool Register, the foreign Veritas, &c.

5. This has not been done. It scarcely seems to be the business of a Government Board or Department.

6. This has been done. See below, 1850-1862.

7. This has been done. See below, 1856.

8. Not done by the Government. It is a doubtful recommendation, so far at any rate as Government are concerned. It has been found necessary to put an end even to Greenwich Hospital.

9. Established at the Public Shipping Offices under the Act of 1850; if not successful, the want of success is due, not to the want of opportunity, but to the fact that shipmasters and ship-owners have not taken advantage of them.

10. Done to some extent by training-ships established by private effort. See below, 1858.

11. Done. See below, 1850-1862, &c. See reports of these cases appended to each Annual Wreck Register.

12. Done, by Acts of 1844, 1854, 1862, &c.

13. Done. See below, 1853, 1860, 1861.

14. Done in many ships. Drunkenness in officers is frequently punished by suspension of certificates under the Acts of 1850, 1854, and 1862.

Proposed Remedies.

Subsequent Action or Events.

15. Prevention of deck cargoes.

15. Attempted in North American timber trade by Imperial legislation in 1839, repealed 1862. Re-enacted, with modifications, by Canada, 1872.

16. Solid bottoms to ships.

17. Manby's mortar apparatus for saving life from wrecks.

17. Done more efficiently by rocket apparatus established, under the Act of 1854, all round the coast. See 1854, below.

18. Attention called to the vast superiority in officers, crews, and equipments, and consequent superior success and growth, of American shipping.

18. This is curious, viewed by the light of present facts. The oversea tonnage of America was in 1836, 897,775, and in 1873, 1,423,288. The tonnage of the British Empire, almost all of which is sea-going, was in 1836, 2,792,646, and in 1873, 7,294,230. See Parl. Paper, 214, 1875, page 15. In the Foreign Trade of New York the British ships entered and cleared were in 1860, in number 2,288, and in tonnage 714,059; in 1869 they were in number 4,315, and in tonnage 3,062,599; whilst United States ships were in 1860 in number 5,232, and in tonnage 2,784,715, and in 1869 the same ships were in number 3,901, and in tonnage 1,913,089, so that in the trade of the commercial capital of America British ships have trebled in nine years, whilst native American ships have diminished by one-third. See Parliamentary Paper C. 630, 1872.

I have headed the list with the above Committee of 1836, because their Report attempts to deal with the whole subject, and suggests or anticipates many changes since made. In the following pages will be found a statement of what has since been done with the addition of two previous Acts, specially relating to seamen. At this time (1836) Mr. Joseph Hume had been active in calling attention to the subject of merchant ships and seamen, and many of the steps then taken were due to his exertions.

1834.

Merchant Seamen's Fund.—Under former legislation merchant seamen had been compelled to pay 6d. a month to Greenwich Hospital, from which they never derived any benefit. By this Act this 6d. was devoted

to the Merchant Seamen's Fund, *i.e.*, to pensions for merchant seamen. But at the same time a step fatal to the solvency of the fund was taken in giving the widows and children of merchant seamen claims upon it. See below, 1851, 1869, 1872.—4 & 5 W. 4, c. 52.

1835.

Register Office for Seamen Apprenticeships, &c.—Questions had arisen then, as now, concerning the supply of seamen, with a view to the Royal Navy no less than to the merchant service. A registry office for seamen was established, which still exists. Rules were established for apprenticing boys to the sea service, and facilities given for apprenticing paupers, and the law relating to discipline in the merchant service was consolidated.—5 & 6 W. 4, c. 19.

Emigrants.—By an Act passed in 1835 a previous Act relating to emigrants to North America was repealed, and provision was made regulating all ships carrying a large number of passengers to places out of Europe. A certain amount of space between decks was required, and a certain quantity of provisions, depending on the number of passengers and the length of the voyage. The ship and provisions were to be surveyed. Ships carrying 100 passengers were to carry a doctor. Lists of the passengers were to be made out and kept.—Passenger Act, 5 & 6 W. 4, c. 3.

1836.

Lighthouses.—By an Act passed in 1836 a number of lighthouses which formed part of the hereditary estate of the Crown, and which had been granted to private persons, were transferred to the Trinity House, and provision made for reducing the exorbitant tolls.—6 & 7 W. 4, c. 79.

Harbours of Refuge.—A Committee was appointed to consider the subject of harbours of refuge on the north-east coast.—Parl. Paper, 334.

1839.

Committee on Shipwrecks.—A Select Committee appointed in 1839 paid particular attention to the shipwrecks in the North American timber trade, and recommended restrictions on deck loading in the winter months in the trade carried on by British ships between British North America and the United Kingdom. These recommendations were carried into effect by a temporary Act, made perpetual in 1840, re-enacted afterwards by the Customs' Consolidation Act, 1853, and repealed by the Merchant Shipping Act Amendment Act, 1862. The history of this enactment, its failure, the repeated but unsuccessful attempts to enforce it, with the reasons for its appeal, are fully given in the evidence of Mr.

Farrer to the Unseaworthy Ships' Commission, qu. 228 to 298, and again 18,578-81. The repeal of this Act is, so far as I know, the sole ground for unfounded charges recently made by Mr. Plimsoll against Mr. Milner Gibson; but to the reasons for that repeal he, in making these charges, did not refer.—Parl. Paper, No. 393, 1889. 2 & 3 Vict., c. 44, 1840, 3 & 4 Vict., c. 36.

1840.

Harbours of Refuge.—In 1840 a Committee was appointed to consider the subject of harbours on the south-east coast.—Parl. Paper, 368, 1840.

Emigrants.—In 1840 the Act 5 & 6 Will. IV., c. 58, concerning emigrant ships, was extended to intercolonial voyages.—3 & 4 Vict., c. 21.

1842.

Emigrants.—In 1842 the previous Acts concerning emigrant ships were amended and consolidated. Additional provision was made for a given space for each passenger, and for a given amount of food to be served out daily. The ships were to be provided with boats; contracts were regulated; passage brokers were to be licensed; and special emigration agents to be appointed. This Act extended to foreign as well as British ships, but not to any ships carrying less than 80 passengers or to cabin passengers.—5 & 6 Vict., c. 107, Passenger Act.

1848.

Committee on Shipwrecks.—In 1848 another Committee was appointed to consider the question of shipwrecks.—Parl. Paper, 549, 581, 1848.

This Committee reported that the ships lost in 1841-2 were less in proportion to the registered tonnage than those in 1833-4-5, and also that the loss of timber ships in 1840-1-2 was much less than that in 1836-7-8, a result which they attribute to the deck-loading law of 1839. How little reliance can be placed on any such conclusion may be seen from the following figures (see Mr. Farrer's evidence before Unseaworthy Ships Commission, qu. 292):—

Loss of life in timber ships from North America.

Average for 1833-4-5, before deck-loading law, as reported to Committee of 1848	-	-	-	306
Average for 1840-1-2, after deck-loading law, as reported to same Committee	-	-	-	106
Number in 1871, after repeal of deck-loading law	-	-	-	16
Number in 1872	-	-	-	105

The statistics are probably imperfect, and indeed those of the earlier time are confessedly only estimates. But the later statistics are more

complete than the earlier, and they are at any rate as good for purposes of comparison as those on which the Committee of 1843 relied.

The Committee of 1843 made the following recommendations :—

RECOMMENDATIONS.	ACTION.
1. Extension of prohibition of deck loading .	Not done.
2. Survey of passenger steamers	Done. See below, 1846, 1851, 1854.
3. Examination of masters and mates . .	Done in 1851. See below.
4. Inquiries into losses of ships	Done in 1851, 1862. See <i>Annual Wreck Register</i> .
5. Pilotage, amendments of the law concerning	Done to a considerable extent, 1853, 1862.
6. Construction of harbours of refuge . .	Much done; many inquiries and reports. See above, page 2.
7. Sound signals to be added to lighthouses .	Now in progress (1875). See <i>Parliamentary Paper</i> , 224, 1875.
8. Revision of charts	Constantly made by the hydrographer.
9. Establishment of rocket and mortar apparatus.	Done under the Act of 1854. See the <i>Annual Wreck Register</i> .
10. Boats and lifeboats to be carried . .	Done with imperfect success, 1846, 1851, 1854, 1873.
11. Iron steamers to be compulsorily divided by watertight compartments.	Done, and repealed as a failure in 1862.
12. Rewards for saving life from shipwreck .	Done. See below, 1854. See <i>Annual Wreck Register</i> .
13. Revision of laws and administration for protecting wrecked property from plunder.	Thoroughly done. See below, 1846 and 1854.
14. Code of law for merchant seamen.	Done. See below, 1854, 1869, 1870, 1871.
15. International arrangements for vessels meeting at sea.	Done. See below, 1862.

1844.

General Merchant Seamen's Act.—In 1844 an Act was passed requiring every seaman to have a register ticket, and compelling merchant ships to carry a certain number of apprentices in proportion to their tonnage. This Act also contained provisions requiring lime-juice to be served out, requiring merchant ships to carry medicines, giving seamen summary powers for recovering their wages, protecting seamen from imposition at the hands of crimps, and for punishing crimes committed on board ship. The register ticket was abolished as a useless nuisance in 1853, under an Act passed in 1850.—7 & 8 Vict., c. 112.

1845.

Ship Registry.—In 1845 was passed an Act consolidating and amending the law relating to the registry and measurement of British ships.—8 & 9 Vict., c. 89.

Tidal Harbours Commission.—In the same year was appointed a Commission to inquire into the subject of tidal harbours. They made two reports, one in 1845 and another in 1847. The result was the creation of the Harbour Department of the Admiralty, which after a few years ceased to exist as a separate department, and the functions of which were transferred to the Board of Trade in 1862, as mentioned below.—Parl. Report, c. 611, 1845, and 411, 1847.

Licenses for Crimps.—In 1845 was passed an Act requiring all crimps, i.e., persons employed in providing seamen for ships, to be licensed, with power to withdraw their license in case of misconduct.—8 & 9 Vict., c. 116.

1846.

Wreck and Salvage.—In the year 1846 was passed an Act relating to wrecks on the coasts of the United Kingdom, with full provisions concerning the keeping of order, the saving of life and property, and the custody of derelicts. The great defect of this Act, in many respects a very good one, was that in placing the administration of the law in the hands of the Admiralty it practically left it in the hands of certain officers called receivers, whose chief interest lay in getting fees and making expenses.—(9 & 10 Vict., c. 99.) This was remedied in 1854.

Survey of Steamers, &c. 9 and 10 Vict., c. 100.—In the same year was passed an Act requiring—

1. That all iron steamers should be divided by watertight compartments into three partitions.
2. That all sea-going vessels should be provided with boats in proportion to their tonnage.
3. That steamers should pass to the port side of each other.
4. That steamers when within 20 miles of the coast should carry lights to be prescribed by the Admiralty.
5. That passenger steamers should be surveyed half-yearly by some surveyors to be approved by the Board of Trade.
6. That accidents to steamers should be reported to the Board of Trade, with power to the Board of Trade to inquire into the cause of loss.

The provision concerning watertight partitions having proved a total failure, was repealed in 1862. The provision concerning boats has been amended, but it has been found impracticable to enforce it, except in the case of vessels surveyed by the Board of Trade, and there it has been modified. The other provisions of the Act have been much extended and altered by more recent Acts, especially by the Acts of 1848, 1854, and 1862.

1847.

Emigrant Ships.—In the year 1847 the Act 5 & 6 Vict., c. 107 relating to the carriage of emigrants by sea, was amended by extending it to ships carrying more than one passenger for every 25 tons burthen, and by making further provisions as to diet, ventilation, &c.—Passenger Acts, 10 & 11 Vict., c. 103.

1847-8.

Merchant Seamen's Fund Commission.—A Commission was appointed of which Lord Ellenborough was chairman, to inquire into the condition of the Merchant Seaman's Fund. A state of complete mismanagement and insolvency was disclosed. The Legislature had compelled contributions, but had taken no security for solvency or good management. The administration was vested in different irresponsible bodies at the different ports, so that the state of the funds at the different ports, and the amount and number of pensions granted, differed according to their different principles of administration and different degrees of insolvency. All, however, were hopelessly insolvent. As to the winding-up of this fund, see below, 1851.—Parl. Report, c. 931, 1847-48.

1848.

Emigrant Ships.—In 1848, the Acts relating to carriage of emigrants to North America were amended by requiring proper cooking apparatus, more space for the passengers in certain cases, and medical examination of the passengers.—Passenger Acts, 11 Vict., c. 6.

Safety Steam Navigation.—Amendment of the Act of 1846, 9 & 10 Vict., c. 100.—11 & 12 Vict., c. 81.

1849.

Emigrant Ships.—In 1849, the Acts relating to the carriage of emigrants then administered by the Emigration Commissioners were again consolidated and amended by making further provisions for decency, diet, ventilation, &c.—Passenger Acts, 12 & 13 Vict., c. 38.

Repeal of Navigation Laws, Foreign Trade.—In this year the whole of the privileges given by Navigation Laws to British Ships in the foreign trade were repealed; the enactments making British build a condition of British registry were repealed; and the provision in 7 and 8 Vict. c. 112, requiring British Ships to carry a certain number of apprentices was also repealed. The provisions that in British ships when in the foreign trade three-fourths, and when in the coasting trade the whole of the crews, must be British seamen, and that the master must be British subject, were retained and re-enacted.—12 & 13 Vict., c. 29.

Before and at the time of the repeal of the Navigation Laws repeated complaints had been and were made :

1. Of incompetency in officers.
2. Of want of discipline amongst seamen.
3. Of crimping and its evils.
4. Of passing tolls, town dues, charity dues, compulsory pilotage, and other local charges on shipping.
5. Of liability of shipowners under Lord Campbell's Act.
6. Of timber dues.
7. Of want of reciprocity in foreign nations.
8. Of the Merchant Seamen's Fund.

(See reports of committees above. Also replies of H.M. Consuls to Mr. Murray's letter, presented in 1848 under the title "Papers relating to the Commercial Marine." Parl. Report, c. 913, 1847-48.)

Pilotage.—Compulsory pilotage having been much complained of, the late Lord Taunton, then Mr. Labouchere, obtained the passing of an Act by which pilotage authorities were enabled to examine masters and mates, and to give them, if found competent, certificates exempting them from compulsory pilotage.—12 & 13 Vict., c. 88.

Light Dues.—Mr. Labouchere also procured from the Trinity House a large reduction of light dues on coasters.

1850.

Mercantile Marine Act.—By an Act, introduced in 1850 by Mr. Labouchere, the Marine Department of the Board of Trade was first established, and certain functions of the Admiralty relating to merchant seamen were transferred to it. (13 & 14 Vict., c. 93.) As to the increase and development of this department, see below, 1875. By the same Act provision was also made for :—

1. A system of examination of masters and mates.
2. The establishment of shipping offices, at which the crews of foreign-going British ships are engaged and discharged.
3. Inquiries into shipwrecks, and into the misconduct of masters and mates, with power to cancel and suspend their certificates. The authority for power for instituting these inquiries and for managing them was vested absolutely and without restrictions or regulations in the Board of Trade.
4. Regulating advance notes by requiring them to be made before a shipping master on prescribed forms, and then giving a summary remedy to the holder. This provision was repealed in 1854, having been found to work unsatisfactorily.

5. Requiring a certain space to be appropriated to seamen on board ship. *See* further legislation in 1867.
6. Imposing severe penalties for desertion and breaches of discipline.
7. Instituting naval courts to inquire into complaints abroad, with power to remove the master and discharge seamen.

1851.

Mercantile Marine Act Amendment Act.—By an Act, introduced in 1851 by Mr. Labouchere, the Mercantile Marine Act of the previous year was amended and extended in a variety of particulars.—14 & 15 Vict., c. 96.

Steam Navigation Act.—By an Act, introduced in 1851 by Mr. Labouchere, the Act 9 & 10 Vict., cap. 100, was re-enacted and the chief alterations amended (14 & 15 Vict., c. 79) being :—

1. That the Board of Trade were to appoint, instead of approving, surveyors of passenger steamers.
2. That the Admiralty should have the power of requiring sailing vessels, as well as steamers, to carry lights on all parts of the sea.
3. Rules for all vessels passing each other, whether steamers or sailing vessels.

Seamen's Fund Winding-up.—By an Act, introduced by Mr. Labouchere in 1851, the Government undertook to remove the great grievance to seamen of the Merchant Seamen's Fund by winding it up at the cost of the country. The principle adopted was to take all existing assets ; to pay all existing pensions or claims to pension ; and to allow existing contributors to continue their contributions with the prospect of a pension. The amount of future pensions was to be determined by taking the average of then existing pensions, which besides being frequently withheld from want of funds, differed in amount as mentioned above, at the different ports. The difference between assets and liabilities was to be paid out of the Public Exchequer. This process is not yet completed. It has cost the country upwards of £1,000,000, and will probably cost upwards of £500,000 more before all claims have been satisfied. The number of pensions which have been granted by the Board of Trade under it is as follows : to masters and seamen, 7,528 ; to widows, 8,349 ; to children, 6,623.—14 & 15 Vict., c. 102.

In addition, under the recent Acts concerning Greenwich Hospital, pensions are granted to seamen who before 1835 paid towards that institution. *See* below 1869, 1872.

Wages, &c., of Deceased Seamen.—By the same Act, also introduced by Mr. Labouchere, the Board of Trade were empowered to receive and administer the wages and effects of deceased seamen heretofore adminis-

tered by the managers of the Merchant Seamen's Fund. These, which in the hands of those managers only amounted to a few hundreds a year, have in the hands of the Board of Trade been so administered as to distribute amongst the families of deceased seamen sums averaging upwards of £20,000 a year in amounts not exceeding £7 each, with an unclaimed surplus averaging £9,000 a year, which is paid into the Exchequer.—Parl. Paper, 148, 1875.

Emigrants.—The Acts relating to the carriage of emigrants were further amended in respect of diet, &c.—14 & 15 Vict., c. 1.

1852.

Foreign Deserters.—By an Act introduced by Mr. Henley, facilities were given for apprehending deserters from foreign ships. This Act was needed not only for the benefit of Trade generally, but also in order to enable this country to obtain corresponding facilities from foreign countries.—15 & 16 Vict., c. 26.

Under this Act, arrangements have been made with all or almost all the maritime nations of the world except the United States. But these arrangements must be carried further, and must comprise more than mere facilities for apprehending deserters, if we are to maintain discipline in our ships when in foreign ports.

At this time Mr. Henley and Lord Colchester undertook the amendment and consolidation of the statute law relating to merchant seamen. The Bill thus prepared afterwards formed part of the larger Consolidation Bill brought in and passed by Mr. Cardwell in 1854.

Emigrant Ships.—By an Act of 1852 the several previous Acts relating to the carriage of emigrants by sea were again consolidated and amended in a large number of particulars.—15 & 16 Vict., c. 44.

1853.

Pilotage.—By an Act, introduced by Lord, then Mr. Cardwell, in 1853, the Cinque Ports pilots were placed under the Trinity House. By this Act also Mr. Labouchere's Act of 1849 was extended so as to enable the Board of Trade, on refusal of pilotage authorities to grant licenses to competent officers exempting them and their ships from compulsory pilotage, to grant such licences themselves; and provision was made for publishing annually the state of pilotage in each district and for enabling local pilotage authorities to amend and alter their own systems.—Pilotage Laws Amendment Act, 16 & 17 Vict., c. 120.

Merchant Shipping Act Amendment Act.—By a further Act, introduced in 1853 by Mr. Cardwell (16 & 17 Vict., c. 131), the following objects were effected:—

The expenditure of the Trinity House on lighthouses and that of the Scotch and Irish lighthouse boards were subjected to the control of the Board of Trade :

The power of granting pensions out of light dues was put an end to ; and a fund called the Mercantile Marine Fund, consisting of light dues and various fees on shipping was established and so regulated as to be applicable only in payment of the services in respect of which the Tolls and Fees were levied :

The provisions in 12 and 13 Vict., c. 29, requiring the master and a certain proportion of the crews of British ships to be British subjects, were repealed, leaving British ownership the only test and condition of a British ship :

Severe penalties were imposed for unduly assuming the British flag : Provision was made for compensating shipowners whose men should volunteer into the Navy, and for regulating salvage claims made by Her Majesty's ships, matters which at that time were much complained of by shipowners.

Light Dues.—As to the reductions in light dues made under this Act, amounting to not less than 75 per cent. of the whole sums levied, and as to the new lighthouses which have been built at a cost of £1,000,000. See below, Committee of 1860, page 14.

Colonial Lighthouses.—The administration of certain colonial lighthouses was transferred from the Admiralty to the Board of Trade.

Local Charges on Shipping.—A Commission was, at the instance of Mr. Cardwell, appointed in 1853 to inquire into passing tolls, town dues, and other local charges on shipping. This Commission made two valuable and exhaustive reports in 1854 and 1855. Almost all their recommendations have since become law. See below, 1861 and 1867.—Parl. Paper, C. 1886/54, C. 1911, and C. 1967/55.

1854.

Repeal of Navigation Laws.—An Act of 1854, introduced by Mr. Cardwell, repealed the last fragment of the Navigation Laws, so far as the country is concerned, by admitting foreign ships to the coasting trade of the United Kingdom. As to the coasting trade of the Colonies.—(17 & 18 Vict., c. 5.) See below, 1869.

The Merchant Shipping Act of 1854 (17 and 18 Vict., c. 104), introduced by Mr. Cardwell, consolidated into one Act all the Acts relating to merchant shipping, except those relating—

1. To customs duties.
2. To emigrant ships, then under the Colonial Office and the Emigration Commissioners.
3. To harbours, then under the Admiralty.

This Act was not merely a consolidation Act. The existing Acts were amended throughout in innumerable particulars, and the following branches of law were entirely revised and recast:—

(a.) The law of ship registry.

By this law, which has operated most successfully, the national character of a British ship is determined and recorded, and a title is given which can be transferred without expense by a mere entry in the register book.

(b.) The law of measurement of tonnage :

By this law an accurate measurement is taken of the internal contents of a ship. It would be perfectly satisfactory, but for certain deductions and exemptions made contrary to the wish of its author, Mr. Moorsom.

(c.) The law relating to wrecks :

By this law the responsibility for keeping order at wrecks, and for the custody of wrecked property, was placed in the hands of customs and coastguard officers, acting under the directions of the Board of Trade. Provision was made for giving salvors of life salvage out of rescued property, and rewards out of the Mercantile Marine Fund. Provision was also made for subsidizing and bringing into order lifeboats, a task since then admirably performed by the National Lifeboat Institution, as well as for re-organizing and supplying the rocket apparatus round the coasts, a task no less important and no less efficiently performed under the Board of Trade by the Coastguard and by Volunteer Brigades established for the purpose. According to the last Wreck Register there are now on the coasts of the United Kingdom 267 lifeboats, of which 235 are under the National Lifeboat Institution; and there are also on the same coasts 289 places supplied with the rocket apparatus. (Wreck Register, Parl. Paper, c. 1,260, 1875, p. 302.) Provision was also made for the summary settlement of salvage disputes. Inquiries into wrecks were also placed on a less arbitrary footing, and were made more frequent, regular, and judicial. Full particulars on all these subjects will be found in the Wreck Register, which is laid before Parliament annually.

(d.) Limitation of shipowner's liability :

The limitation of the shipowner's liability to the value of ship and freight, which had long existed with respect to damages for loss of property, was extended to damages for loss of life incurred under Lord Campbell's Act, with a proviso that in case of loss of life the value of the ship should not be taken at less than £15 a ton.

(e.) Summary remedy for wages, breach of discipline, &c. :

Legal procedure for the recovery of wages, the enforcing of discipline, and settlement of disputes, was improved and made more summary. It

may be noticed here, especially since unfounded statements to the contrary have been recently made, that not only has the seaman very peculiar remedies for his wages under the general maritime laws which gives him a lien on the ship, but that his remedy has been made very specially summary, cheap, and efficient by a succession of statutes, from 7 & 8 Vict., c. 112, mentioned above, down to the Acts of 1854 and 1862.

(f.) Seamen's Money Orders :

Under Section 177 a system has been established, through the medium of the shipping offices and the consulates abroad, under which seamen, when paid off, can remit their wages, without expense, to their relatives at any port in the United Kingdom. Upwards of £5,000,000 of money has thus been remitted since the commencement of the system. The sums now remitted amount to nearly £400,000 a year, in sums averaging £6 each.—Seamen's Money Orders, Merchant Shipping Act, 1854, s. 177. Parl. Paper, 161, 1875.

Meteorology.—At this time the Meteorological Office of the Board of Trade was established under the late Admiral Fitzroy. Its original object was to collect and digest observations on Ocean Meteorology, with the view of assisting navigation. Its further development will be found below, 1866.—See Report of 1866, 14,145/66.

1855.

Colonial Lighthouses.—An Act of 1856 enabled the Board of Trade to raise funds for building lighthouses in the colonies by means of passing tolls.—Merchant Shipping Act Amendment Act, 1855, 18 & 19 Vict., c. 91.

Emigrants.—In this year the Acts concerning emigrant ships were again amended and consolidated. They were up to and at this time under the Colonial Office.—18 & 19 Vict. Passenger Act, c. 118.

Seamen Deserting Unseaworthy Ships.—In December, 1855, the Board of Trade took the opinion of the Law Officers on the question whether seamen could be compelled to go to sea in unseaworthy ships, and in January, 1856, this opinion, which was in the negative, was sent by the Home Office to the Magistrates at the seaports. See App. to First Reports of Unseaworthy Ships Commission, No. V., p. 455, and following. See also below, 1864, 1869, and 1871.—Parl. Paper, C. 853, 1875.

1856.

Local Shipping Dues.—In this year Mr. Lowe brought in a Bill for abolishing the taxes on shipping condemned by the Shipping Dues Commission, viz., Town Dues, Charitable Dues, Passing Tolls for so-called Harbours of Refuge, and Local Differential Dues. The Bill was referred to a Select Committee, which was occupied all the session with the important case of Liverpool. The inquiry ultimately resulted in a reform of

the dock management and in the transfer of the Liverpool town dues to the dock estate. As to the other Dues, see below, 1861.—Parl. Paper, 225, 56.

Seamen's Savings Banks.—An Act passed in 1856 enlarged the power of the Board of Trade to establish savings banks for seamen. They were accordingly, in the same year, established on the same principles as afterwards adopted in the Post Office Savings Banks, so that a seaman putting in a deposit at a shipping office at any port could add to or withdraw it at any other port. Under this Act there are now in hand funds amounting to about £85,000. The sum of £50,182 was paid in, and £44,964 paid out in 1874.—19 and 20 Vict., c. 41, Parl. Paper, 161, 1875.

1857-8.

Harbours of Refuge.—In 1857 a Select Committee was appointed to consider the subject of Harbours of Refuge, about which as a cure for wrecks the public were then almost as anxious as they are about unseaworthy ships now. The Committee sat two years, and finally recommended a scheme, according to which five or six large harbours were to be constructed, partly out of public votes, partly by passing tolls on shipping. They recommended that a practical Commission should be appointed to report on the exact sites and plans. Such a Commission was appointed, and reported in favour of constructing what they termed “life harbours,” entirely out of public funds, and of making loans on favourable terms to trading harbours.—Parl. Paper, 844 & 844 I., 1858. Parl. Paper, C. 2,474, and C. 2,506, Sess. 1, 1859.

1859.

The Government resisted the plan of this Commission so far as regards the construction of harbours of refuge by public grants, and it has never been carried into effect. But much has been done by local efforts, aided by loans from the Public Works Loan Commissioners. See below, Act of 1861, and see Parliamentary Paper, No. 176, 1871.

The harbours of Kingston, Alderney, Portland, and Dover had previously been undertaken by the Government. But they were harbours needed for naval and military purposes. Harwich Harbour and the Spurn Point, forming the defence of the estuary of the Humber, were and still are protected from the sea by the help of public money.

Naval Reserve.—In 1859 a Royal Commission, appointed to consider the manning of the Navy, recommended that, in addition to reserves of marines, coastguard, and pensioners, there should be raised and maintained out of the merchant service a trained reserve force of 30,000 men, by means of a system of annual retainer and pension, and that this force should be recruited for the future by the establishment of Government training-ships.

The Act 22 & 23 Vict., c. 40, was passed in order to carry the former part of this scheme into effect, and under it there are now (1875) enrolled in the Royal Naval Reserve the following numbers of merchant seamen :—

First class	-	-	-	-	12,423
Second class	-	-	-	-	4,866
					<hr/>
Total	-	-	-	-	17,289
					<hr/>

Training Ships.—Nothing has been done by the Government to carry out the recommendation of the Commission as to public training-ships. Many private training-ships have, however, been established by voluntary efforts, which supply a considerable number of recruits for the merchant service, besides accomplishing their primary object, viz., that of reforming young criminals, and reclaiming lads who are in danger of becoming criminals. In order to become all that the merchant service requires, training at a later age and actual service at sea seem to be desirable. (See Parliamentary Paper, No. 11, 1875.) It is a remarkable and not a very satisfactory feature in these institutions, that the State pays handsomely towards those ships which are a refuge for criminals, or *quasi* criminals, whilst it pays nothing, or next to nothing, to those ships which provide for the education of the children of honest and deserving parents. In other words, the State not only discourages the deserving, as compared with the undeserving poor, but offers a special inducement to man the merchant service with boys who are drawn from the worst part of the population, and who, whatever may be the beneficial influence of the training they receive, have never known the influences of a respectable home.

1860.

Anchors and Chain Cables.—In 1860 a Committee of the House of Commons recommended the compulsory testing of chain cables and anchors. This was done in 1864, 1871, and 1874.—(Parl. Paper, No. 182, 1860.) See below.

Committee on Merchant Shipping.—In the same year, the shipping interest being in a state of depression, complaints were made of the effect of the Repeal of our own Navigation Laws, of the operation of the Navigation Laws of foreign countries, of the burdens affecting shipping in this country, and of the legislation affecting shipping; and a Select Committee was appointed at the instance of Mr. W. S. Lindsay to consider the whole subject.

The following are the principal recommendations made or points adverted to by this Committee, with the subsequent action or event :—

**Recommendations made or points
adverted to by Committee.**

1. As regards the Navigation Laws, the information elicited by this Committee and their Report seems to have given a final quietus to any suggestions for reaction or retaliation. The Report complains of the action of various foreign countries in refusing to admit British ships to various branches of their trade, and especially to that of the United States with reference to the so-called coasting trade between the Atlantic and Pacific seaboard; but it only suggests diplomatic action.

2. As regards belligerent rights, which had been brought into prominence by the Crimean war, and the Declaration of Paris, this Report points to the unsatisfactory state of the British relations with the United States, and recommends the abolition of the right of capture of private property at sea.

3. As regards the liability of ship-owners, the Report points out that the existing limit of liability, viz., the value of ship and freight, in case of damage to ship and goods, operates harshly as against the owner of valuable ships and cargoes; and recommends a limit of £15 a ton, without reference to value. The Report also points out that the limit of liability does not apply to the case of a foreign ship in British courts, and suggests arrangements with foreign countries.

4. As regards light dues, the report recommends the transfer of the charge of maintaining lighthouses to the Consolidated Fund, and states that the light dues constitute a considerable burden on the coasting trade.

Subsequent action or event.

1. Since this Committee reported, France has in 1866 abolished, in 1872 recreated, and again in 1873 abolished, the "Surtaxe de Pavillon" on foreign ships in her indirect trade; Italy has by treaty of 1863 admitted British ships to national treatment; and Austria has by treaty of 1868 done the same thing. The question of the Navigation Laws of the United States has lost much of its importance in consequence of the decadence in recent years of United States shipping as compared with British shipping.

2. It is needless to say that this has not been done.

3. As to both these points, see Merchant Shipping Amendment Act of 1862, below.

4. This recommendation has not been adopted. But under the arrangements made in 1853, reductions to the extent of 75 per cent. have been made in the light dues, so that a ship which 20 years ago paid 4s., now pays only one. The aggregate reductions since 1853 are estimated at more than £750,000 a year, or 237 per cent. of the present income from light dues, which is about £316,000 a year. See Parl. Paper, No. 27, 1875. Nor has economy been consulted at the

Recommendations made or points
adverted to by Committee.

Subsequent action or events.

5. As regards pilotage, the Report recommends the abolition of compulsory pilotage, and a revision of the entire management of the Bristol Channel Pilotage.

6. As regards local charges from which shipping derive no benefit, the Report recommends their abolition.

7. As regards legislation, the Report reviews the Act of 1854, on the whole, with approval. It recommends a new rule of the road and system of lights at sea.

8. It also recommends a national system of reserves of merchant seamen.

9. Lastly, the Committee refer to stamp duties on charter policies, and on policies of insurance.

cost of efficiency. On the contrary very great improvements have been made in the lighthouse system. Since 1858, the date of Mr. Cardwell's new arrangements, not less than 57 new lighthouses have been built, and 15 new lightships have been placed, whilst 37 old lighthouses have been rebuilt and re-organized, at an aggregate cost of more than £1,000,000, all of which has been paid out of revenue. At this present moment the Trinity House are establishing a cordon of fog-signals. See below, 1875.

5. As to these, see below, 1861 and 1870.

6. This has been done. See below, 1861.

7. This has been effected by the legislation of 1862, and subsequent arrangements. See below.

8. This has been partially carried into effect. See above, under 1859.

9. These duties have been since reduced and simplified. See 28 & 29 Vict., c. 96, s. 7; 33 & 34 Vict., c. 97, ss. 66 & 67, and schedule; and 30 Vict., c. 23.

French Treaty.—This was a treaty of commerce, and not of navigation, but the negotiations with respect to it led to the abolition of the French "Surtaxe de Pavillon," above referred to, and to the abolition in 1867 of the English exemption from local charges which were enjoyed by freemen and others.—Parl. Paper, C. 2,644, 1860.

1861.

Harbours and Passing Tolls Act.—By an Act of 1861, introduced by Mr. Milner Gibson, most of the grievances pointed out by the Commission on Local Charges on Shipping of 1853-4, and by the Committee of 1860, were removed. The passing tolls levied for the support of the

harbours of Ramsgate, Dover, Whitby and Bridlington, were abolished ; the grant of pensions and charities out of taxes on shipping was put an end to ; local differential charges on foreign shipping were prohibited ; and power was given to the Public Works Loan Commissioners to lend money for the improvement of trading harbours at a low rate of interest. The loans made under this Act are stated in Parliamentary Papers 176, 1871, from which it appears that a sum of £1,846,400 had then been advanced. Since then upwards of £350,000 more had been advanced, making in all about £2,200,000 of advances by the State to local harbours.—24 & 25 Vict., c. 47. Parl. Papers, 457, 1862, and 176, 1871.

Bristol Channel Pilotage Act.—By another Act of the same year, compulsory pilotage for the Bristol Channel ports, which had previously existed in favour of Bristol pilots, was abolished, and the large ports in the Channel obtained powers to establish independent and voluntary systems of pilotage.—24 & 25 Vict., c. 236.

Lighthouse Commission.—In the same year, a Royal Commission, which had been issued under Lord Derby's Government to consider the subject of lighthouses, made its report. It had collected a great deal of minute information, some of which has, I believe, been of value to the lighthouse authorities. But its general recommendations concerning the administration of lighthouses have not been carried into effect.—Parl. Papers, C. 2,793, I., II., 1861.

1862.

Merchant Shipping Act Amendment Act, 1862.—In 1862 an Act introduced by Mr. Milner Gibson was passed amending the Merchant Shipping Acts in many important particulars. (25 & 26 Vict., c. 63.) Its chief features were :—

1. *Examination of Engineers.*—The extension of a system of examination and certificates to engineers in merchant ships.

2. *Inquiries.*—Amendment of the system of inquiries into wrecks and misconduct, by giving the power of cancelling or suspending certificates to the Court which hears the case, and leaving only the power of restoring it (*i.e.*, the prerogative of mercy) with the Board of Trade.

3. *Rules as to Lights, &c.*—The establishment of rules previously agreed on with the French Government concerning the lights to be carried by all ships, and concerning the rules to be observed by all ships so as to prevent collision at sea. These rules have since become the law of the whole maritime world. At the present moment (1875) the Admiralty, Board of Trade, and Trinity House, with the help of suggestions from foreign Governments are considering certain additions and amendments of detail which experience has suggested. As to the

value of these rules generally, and the expediency of maintaining them, there is no question among those who understand the subject.

As to the construction of and supply of proper lamps considerable progress has been made.

4. *Duty in Case of Collision*.—The establishment of the principle that it is the duty of a master of a ship which has been in collision with another ship to stand by her and render assistance. The failure to do this, which, section 5 of Act of 1862, only entailed civil damages, was made a criminal offence in 1873. See 36 & 37 Vict., c. 85, s. 16.

5. *Steamboat Passengers*.—A set of regulations for maintaining order among steamboat passengers.

6. *Pilotage*.—Some relaxation of the general law concerning compulsory pilotage. By a private Act (British Channel Pilotage Act, 1861), pilotage in the Bristol Channel was re-organised and made voluntary.

7. *Local Lighthouses*.—Provision for inspection of local lighthouses.

This is now regularly done by the Lighthouse Boards, and annual reports are presented to Parliament.

8. *Liability*.—The limit of liability of shipowners for damage occurring without their actual fault or privity was altered. By the Merchant Shipping Act, 1854, this limit was the value of ship and freight. This law was a premium on bad, cheap, and ill-found ships, since the owner of the cheap ship could recover against the owner of the valuable ship up to a large limit, whilst the owner of the valuable ship could only recover against the other a very small amount. The law was altered by making the limit a sum dependent upon the tonnage, viz., £15 in case of damage for loss of life, and £8 for loss of goods. The limit of liability was also made to apply in British Courts to Foreign as well as British ships.

9. *Tonnage*.—*International Arrangements*.—Power to make arrangements with foreign nations for a general tonnage law, so that when a ship is once measured for her dues in her own country, that measurement may be accepted in other countries as a proper basis of taxation. Arrangements have since been made for the purpose with the following nations: Austria, Denmark, France, Germany, Italy, Spain, Sweden, and the United States. See below, 1874.

10. *Salvage Jurisdiction*.—Extension of summary jurisdiction in salvage cases.

11. *Delivery of Goods*.—Alteration of the law concerning the delivery of goods, so as to enable the shipowner to obtain the speedy landing of his cargo and clearance of his ship without losing his lien for freight.

12. *Repeal of Law as to Deck Loading and for Bulkheads*.—Repeal of the law concerning deck loads in the timber trade, which had proved im-

practicable. See above (1839); and of the law concerning bulkheads in iron ships, which had proved mischievous.

Merchant Shipping Act Amendment.—This Act, as will be seen, carried into effect most of the recommendations of the Committee of 1860, concerning merchant shipping legislation.

Commercial Code of Signals.—About this time new arrangements were made, with the help of Sir. W. Mitchell, for introducing into general use a new commercial code of signals to be used by all nations at sea. This code had originally been prepared in 1854 and 1855 by a Committee appointed by the Board of Trade, and had been revised and corrected with the help of the French Government. It has since been translated into the languages of all, or almost all, maritime nations; has been adopted by their Governments; and has become, or is fast becoming, one universal maritime language, by which ships of all nations and languages can speak to each other and to signal stations on shore. An attempt is now (1875) being made to make this applicable by night as well as by day.

Harbours Transfer, 25 & 26 Vict., c. 69.—An Act passed in 1862 transferred from the Admiralty to the Board of Trade the jurisdiction possessed by the former for preventing injury to navigation and the management of the harbours of Holyhead and Portpatrick. The harbours of Dover and Alderney were similarly transferred in 1865 by 28 and 29 Victoria, chapter 100. Portpatrick has since been abandoned under an Act passed in 1873, and Alderney has since been retransferred to the Admiralty by an Act of 1874, 37 & 38 Vict., c. 92. Whether Dover Harbour is to be completed or not is a matter still (1875) under the consideration of Government and Parliament.

The history of these harbours, and the vacillation which it shows, are not such as to encourage proposals to intrust the construction and management of such undertakings to the Government and to Parliament.

1863.

Passengers' Act Amendment.—In 1863 the Act of 1855, relating to the carriage of emigrants, was amended, principally by abolishing the tonnage check on the number of passengers and altering the number of passengers necessary to bring a ship under the operation of these Acts.—26 and 27 Vict., c. 51.

Royal Naval Reserve.—In the same year an Act (Naval Reserve (officers), 26 & 27 Vict., c. 69) was passed enabling the Admiralty to enrol as officers of the Royal Naval Reserve, masters, mates, and engineers of merchant ships. Under this Act there are at present inrolled:—

Honorary lieutenants	...	...	...	92
Lieutenants	...	...	...	114
Sub-lieutenants	...	...	...	88
Cadets	...	...	...	70
<hr/>				
Total	...	...	...	364
<hr/>				

1864.

Chain Cables and Anchors.—By an Act introduced by Mr. Laird in 1864, and subsequently referred to a Select Committee, the Board of Trade were empowered to license machines for testing chain cables and anchors, and to appoint an inspector to inspect the machines. A test strain was provided, and it was enacted that no maker should sell any chain for the use of any ship without a certificate from a licensed testing machine. —27 & 28 Vict., c. 27. Parl. Paper, 139, 1864.

Two serious defects in this Act were obvious at the time of its passing, and became more obvious afterwards, viz., first, that there was no provision for a breaking strain, and secondly, that there was no security for the proper and honest working of the testing machine when licensed. Chains might therefore be, and probably were made, just strong enough to bear the test, and might even be injured by the testing, and certificates might, and very probably were given, bearing an appearance of official sanction, whilst the testing might have been effected dishonestly or negligently, or even not at all. The result was that the standard of good chains was lowered rather than raised, and that chains were probably sold as tested which had never undergone a proper test. In addition to this it was found impossible to convict, because it was impossible to prove that an untested chain had been sold *for the use of a ship*. See as to further legislation below, 1871-74.—See Preliminary Report of Commission on Unseaworthy Ships. Parl. Paper, No. c. 853 i. of 1875, p. 8 and evidence, qu. 9,966, 10,576 and 10,912.

Surveys in Cases of Desertion.—At the end of the year 1864 the Board of Trade, being aware of the difficulty which seamen charged with desertion might have in proving unseaworthiness, and having by this time a considerable staff of surveyors, suggested to the Home Office to recommend to magistrates the calling in of Board of Trade surveyors in cases where seamen were charged with desertion, and unseaworthiness was alleged as an excuse, and Sir G. Grey, on 1st January, 1865, issued a circular accordingly. (Questions 246 to 272, and App. No. 5 to Report of Unseaworthy Ships Commission.) See below, 1869, 1870, 1871.

1866.

Timber Duties Repeal.—In this year the timber duties, which ever since the repeal of the Navigation Laws had been complained of by the ship-owners and shipbuilders, were abolished.—29 & 30 Vict., c. 86.

Harbours, Foreshores, &c.—By an Act passed in 1866 was transferred to the Board of Trade the management of the property of the Crown in the foreshore and bed of the sea, thus supplementing the previous transfer to the Board of Trade of the Admiralty jurisdiction over harbours and navigation, and placing in the hands of the Board of Trade the very difficult and delicate task of administering the obscure and much-disputed rights which the Crown still possesses over the foreshore and bed of the sea. (Crown Lands Act, 1866, 29 & 30 Vict., c. 62. Parl. Paper, 18/67.) The principles on which the Board have acted will be found in a memorandum laid before Parliament, No. 18, 1867. The great object of the Board of Trade, so far as the Acts relating to the estates of the Crown permit, has been to allow the shore to be made use of for the purpose of promoting public rights and enjoyments, such as navigation, fishing, walking, boating, bathing, rather than for the purpose of any pecuniary profit to the Exchequer.

Meteorology, Storm Warnings.—The late Admiral Fitzroy had established a system of storm warnings and daily weather forecasts, thus diverting the Meteorological grant from its original object, viz., the furtherance of the knowledge of Ocean Meteorology. Both were much criticised, and in 1866, on the Admiral's death, the Office and its business was inquired into and revised. (Report of Committee, 14,145, 1866.) The administration of the grant was placed in the hands of a committee appointed by the Royal Society, who still administer it. They give their labours gratuitously, and make an annual report, which is laid before Parliament. (Last Report, 1875. Parl. Papers, No. , C. 1,307.) The observations at sea have been continued; and observations have been also made on land in the British Isles. The daily weather forecasts have been given up. But the storm warnings have, with some modifications, been continued, and are still continued, with increasing accuracy and success, and undiminished popularity. They are now hoisted at 130 seaports on the coasts of the United Kingdom, and are sent abroad.

It is proposed at the present time (1875) again to revise the mode in which this grant is administered, and a committee has been appointed by the Treasury for the purpose.

1867.

Merchant Shipping Act, Health of Seamen.—Complaints having arisen of the prevalence of scurvy, and numerous investigations having been

held by the Board of Trade, an Act, introduced by the Duke of Richmond in 1867, made provision for the inspection and safe custody of limejuice or other anti-scorbutics, and for the serving out the same to crews. Provision was also made for throwing the expenses arising from a seaman's illness, when caused by default of the employer on him, and when caused by default of the seaman on the seaman's own wages. Further provision was also made for securing proper space and accommodation for seamen, and for encouraging the shipowner to give it by exempting it after inspection from tonnage measurement. This provision has come into full operation, but there is reason to fear that it has been abused. The same Act also made provision for the medical inspection, on the demand of the master, of seamen when engaged; but this provision has proved a dead letter, in consequence of the inability or unwillingness of masters and owners to avail themselves of it.—30 & 31 Vict., c. 124.

Local Dues Exemption.—In the same year the exemptions of freemen and others from local charges on shipping, which had existed under old charters, and which had been reported against by the Commission of 1854, and the Committee of 1860, above referred to, and had long proved an obstacle to arrangements with France, were abolished. The Act was amended in 1869 and 1870.—30 & 31 Vict., c. 15; 33 & 34 Vict., c. 50.

1868.

Colonial Shipping.—In 1868 powers were given to Colonial Governors to grant temporary certificates of registry to certain ships.—31 & 32 Vict., c. 129.

County Courts Admiralty Jurisdiction.—An Act, introduced by Mr. Norwood in 1868, gave to County Courts Admiralty jurisdiction, thus facilitating the settlement of questions of collision, salvage, wages, damage, &c. It was amended in the following year.—31 & 32 Vict., c. 71; 32 & 33 Vict., c. 51.

Sea Fisheries.—In the same year an Act was passed, one object of which was to repeal, amend, and consolidate the Acts relating to sea fisheries, and to fishermen and fishing vessels. This part of the Act has taken effect. Another part, the object of which was to carry into effect a convention made in 1867 with France, has not yet taken effect, in consequence of objections raised by the French Government.—32 & 33 Vict., c. 45.

Merchant Shipping Consolidation Bill.—At this time, when the Duke of Richmond was President of the Board of Trade, the task of amending and consolidating all the Acts relating to Merchant Shipping was taken in hand, and was continued under different Governments for five years. See below, 1869, 1870, 1871, 1873.

1869.

Merchant Shipping (Colonial).—By an Act of 1869 all restrictions on the Coasting trade of the British Colonies (restrictions which had originally been imposed by Imperial legislation, but which the Colonial Legislatures had for long had the power to relax) were removed, and the Colonies were left free to deal with their own coasting trade, subject to the conditions that existing treaties should be observed, and that there should be no differential treatment of one nation as compared with another.—32 & 33 Vict., c. 11. Coasting Trade of Colonies.

Colonial Examinations.—Provision was, by the same Act, made for giving to certificates granted upon examination to masters, and mates, and engineers of ships by Colonial Governments the same effect as if granted by the Board of Trade in England.

Greenwich Hospital Acts.—The Greenwich Hospital Act, 1869, enabled the Admiralty and the Board of Trade to pay a limited sum in pensions to merchant seamen who before 1835 contributed to Greenwich Hospital. By a subsequent Act of 1872 the limit was removed, and pensions of £3 8s. a year are now granted to all seamen who can show that they paid 6d. a month to Greenwich Hospital for a period of five years. Under these Acts about 3,400 annuities have already been granted, amounting in value to nearly £100,000, and many more claims are coming in, and will come in.—32 & 33 Vict., c. 44, and 35 & 36 Vict., c. 67.

Merchant Shipping Consolidation Bill, No. 267 of 1869.—The Merchant Shipping Consolidation Bill, of which mention has been made above, was introduced on the 9th August, 1869, by Mr. Lefevre, so that it might be considered during the recess. See below, 1870. It contained (clause 278) a provision enabling seamen charged with desertion, or other crime, to obtain an official survey of the ship, and it also contained a clause (384) for recording the draught of water with which ships leave port.

1869, 1870.

Opinions of Consuls on British Ships and Seamen.—A circular was sent by Mr. Lefevre to consuls, asking their opinions on a great many points connected with the condition, employment, and welfare of British ships and their officers and crews. The replies will be found in a Parliamentary Paper, C. 630, 1872, and may be advantageously compared with the replies of Her Majesty's consuls to Mr. Murray's Circular of 1st July, 1843, and published in 1848 as a blue book, under the title of Papers relating to the Commercial Marine of Great Britain.—Parl. Paper, C. 630, 1872.

1870.

Compulsory Pilotage, No. 343, 1870.—A Bill was introduced by Mr.

Lefevre for the abolition of compulsory pilotage. This Bill was opposed by Liverpool and some other places having strong pilotage interests, and was referred to a Select Committee. The Committee made an exhaustive report, dealing with the whole subject of compulsory pilotage, and giving elaborate reasons for its abolition, but the Bill was not proceeded with. It was again introduced in 1871, but was again dropped.

Consular Convention with the United States.—Negotiations were about this time opened with the United States for the purpose of obtaining, by means of a consular convention, better means of enforcing discipline in British ships in United States ports. These negotiations have from time to time been resumed, and are still pending. The object is one of very great importance to our Commercial Marine.

Merchant Shipping Code.—In the year 1870 the Merchant Shipping Code was again introduced by Mr. Lefevre. It embraced the whole of the statutes relating to merchant shipping, to lighthouses, to harbours, and to conservancy of navigation. In fact, it contained all the Statute Law in any way affecting ships and seafaring persons; with the exception of the Acts relating to the revenue which are administered by the Customs; the Acts relating to emigrants, which were then administered by the Colonial Office; and the Acts relating to fisheries, which had been consolidated in 1868 as above mentioned. (No. 24 of 1870. Parl. Paper, 26,178, 1870.) Very considerable alterations and amendments of the existing law were made by this bill. In it appeared the following provisions, some taken from previous Bills, some then introduced for the first time, viz. :—

1. A clause (8) requiring a scale showing the draught of water to be marked on the stem and stern of every British ship.
2. A clause (288) enabling any single seaman or apprentice charged with desertion, who alleges that his ship is not in a fit condition to proceed to sea, to demand a survey, to be conducted, if possible, by a Board of Trade surveyor; if not, by some impartial surveyor appointed by the Court.
3. A clause (818) enabling the Board of Trade to take and record the draught of water of any sea-going ship.
4. A clause (644) making it a misdemeanour to send a ship to sea in an unseaworthy state. These provisions have since become law. See 1871, 1878, 1875.

Other provisions, since adopted in 1871 and 1878, will also be found in the Code Bill of 1870. (Paper 26,178, 1870.) A memorandum was printed and circulated among the members of the House of Commons calling attention to the alterations in the law made by the Bill.

Mr. Plimsoll's Resolution.—On the 28th of July, 1870, Mr. Plimsoll moved a resolution calling in general terms for legislation to diminish losses of ships. His speech did not allude to the Government Bill, but demanded a compulsory load-line and survey for all ships. The resolution was withdrawn.—July, 1870.

1871.

Great pains were taken during the session and the autumn of 1870 to perfect the Merchant Shipping Code.—Merchant Shipping Code Bill, No. 15. C. 287, 1871.

The members for the seaports met constantly and regularly at the Board of Trade, and a fresh edition of the Bill was prepared. In the winter of 1870-71, Mr. Bright and Mr. Lefevre were succeeded at the Board of Trade by Lord Carlingford (then Mr. Chichester Fortescue), and Mr. Arthur Peel, and the bill was introduced by them at the very beginning of the session of 1871. It contained 696 clauses, and replaced upwards of 90 Acts, or parts of Acts. It was, as before, accompanied by a memorandum calling attention to the amendments of the law contained in it, printed as a Parliamentary Paper, No. C. 287, 1871.

The laws relating to emigrant ships were added. It was at this time intended to transfer the supervision of emigrant ships from the Colonial Office to the Board of Trade, an intention carried into effect in 1872. And negotiations with the United States were set on foot for obtaining a common code of regulations concerning these ships. These negotiations have from time to time been postponed and resumed, but are not yet completed.

In this bill, introduced on the meeting of Parliament in February, 1871, were contained the provisions above referred to for the compulsory marking of a scale to denote the draught of water on the stem and stern of every ship (8), for enabling seamen charged with desertion to obtain a survey (section 284), for recording draught of water (section 411), and making it a crime to send unseaworthy ships to sea (section 639).

Another provision of great importance was also for the first time introduced into this Bill, enabling the Board of Trade to prevent a ship from going to sea if found from defects in her hull to be unseaworthy. And a further provision (section 15) was added, preventing a ship from changing her name without the consent of the Board of Trade.

Mr. Plimsoll's Bill, No. 3, 1871.—At the beginning of the session of 1871, Mr. Plimsoll introduced a Bill providing for the compulsory survey of all ships, and for an universal compulsory load-line. After a debate, in which Mr. Fortescue promised, if necessary, to introduce the clauses of the Merchant Shipping Code, above referred to, as a separate Bill, Mr. Plimsoll's Bill was withdrawn.

Merchant Shipping Act.—Unseaworthy Ships.—It became evident in the course of the session that there would not be time to pass the Merchant Shipping Code, except with general consent; and also that there was such desire on the part of those interested to see the Bill passed, that it would enable the minister to pass it, as the Act of 1854 was passed without long discussion in the House. Mr. Fortescue, therefore, selected from the consolidated code those provisions which he thought most important, and introduced them as the Merchant Shipping Bill of 1871. Amongst these provisions were those which are above referred to as contained in the Code Bill, and of which the object was to prevent loss of life. The Bill was postponed until the end of the session from pressure of business, and Mr. Fortescue, from want of time, was unable to pass anything which was seriously contested. Nor, so far as I am aware, was the least help, advice, or criticism given to the Board of Trade by Mr. Plimsoll or any of his friends. The Bill was passed with little or no debate, but the clause giving seamen charged with desertion a right to a survey was modified by confining the right to cases where the complaint of unseaworthiness was made by one-fourth of the crew, or they exceeded 20 by not less than five, and to cases where a complaint of unseaworthiness had been made by them before quitting the ship. Powers of ordering a survey were also given to Naval Courts abroad. 34 & 35 Vict., c. 110.

Chain Cables Act.—By an Act introduced by Mr. Fortescue, in 1871, the Act of 1864, relating to chain cables and anchors, was amended. The right of having licensed testing machines, and of granting certificates of testing, was confined to certain public bodies; and a breaking strain was added to the testing strain. Power was given to vary these strains by Order in Council. The provisions concerning the sale of untested chains was made more stringent, and applied to all sales of chain made in this country whether for the use of ships or not.—34 & 35 Vict., c. 101.

1872.

Merchant Shipping Act.—By an Act introduced by Mr. Fortescue in 1871, certain duties of the Commissioners of Customs, connected with the central registry of shipping, were transferred to the Registrar of Seamen, an officer of the Board of Trade.—35 & 36 Vict., c. 73.

The immediate administration of the laws concerning measurement of tonnage was also transferred from the Commissioners of Customs to the Board of Trade.

The duties of the Colonial Secretary and of the Emigration Commissioners under the Passenger Acts, concerning the carriage of emigrants by sea were also transferred to the Board of Trade.

The surveys of passenger steamers were made annual instead of half-yearly. And some other amendments were made in previous Acts.

1873.

Mr. Plimsoll's Book.—In December, 1872, or January, 1873, Mr. Plimsoll's book appeared. The title-page bears the date 1873.

After the statements made in his book and speeches, it was natural to suppose that he would be able to direct attention to numerous cases of unseaworthiness, more especially when the generosity and sympathy of the public provided him with funds and with organisation. The Board of Trade, therefore, in performing the difficult and invidious duty of stopping unseaworthy ships, naturally looked to him for information and assistance, and paid the greatest attention to all the representations which he made or forwarded to them. These representations, and the results of the action taken upon them, are as follows. He has, from time to time, sent to the Board extracts from their own records of draught of water, records which they first examine in their own office, and of which they send copies to him. He has sent to the Board a list of the ships which have ceased to be classed at Lloyd's, a list upon which it is impossible for them to act, because, as is well known to every well-informed person, the fact that a ship ceases to be classed constitutes no ground for a charge of unseaworthiness. Besides this, he has made or sent charges of unseaworthiness in 54 specific cases. In 10 only out of these 54 cases, has the Board detained the ship as unseaworthy upon the charge so made; whilst in others of them the repairs needed were slight, and readily made by the owner; and in more than half there was not even the shadow of a ground for any such charge. It is interesting to compare these figures with the returns, which show that out of 418 ships reported to the Board of Trade by their own officers, 406 were found on survey to be unseaworthy, whilst only 12 proved to be seaworthy.—Parl. Paper, C. 1,152, 1875.

Commission on Unseaworthy Ships.—It is needless to refer to the effect produced by Mr. Plimsoll's agitation. The Government appointed a Royal Commission to inquire into the subject, which began its sittings at Easter, 1873, made a Preliminary Report in September of that year, and a Final Report on the 1st July, 1874.

The merits of that Report it is not for me to discuss. But it may not be amiss to observe, that if it has met with disapproval, that disapproval has not been supported by any attempt to show that the Report is contrary to the evidence, or faulty in reasoning.

Merchant Shipping Act.—Under the circumstances of the excitement then prevailing, Lord Carlingford, then Mr. Fortescue, unwilling to let slip the opportunity of strengthening and amending the Act of 1871,

took the somewhat unusual course of introducing a Bill for the purpose, pending the sitting of the Royal Commission. That Bill became law, as the Merchant Shipping Act Amendment Act, 1878.—36 & 37 Vict., c. 85. It contained the following provisions :—

1. An amendment of the enactments relating to the marking on every ship of her name, and of a scale of feet indicating the draught of water.
2. A clause requiring the record of draught of water, to contain in addition the "clear side."
3. A provision to prevent a foreign ship from changing her name on becoming British.
4. A provision to prevent wrecked or abandoned ships from being re-registered without previous survey.
5. A provision giving a seaman a claim for compensation where, having been detained on a charge of desertion, the ship upon survey is shown to be unseaworthy.
- 6 The provision in the Act of 1871, enabling the Board of Trade to detain unseaworthy ships, was strengthened in the following particulars :—

a The Board are enabled to act of their own accord and without complaint from without. The importance of this is shown by the fact that out of 474 vessels reported or surveyed by the Board under this Act, 435 have been reported by their own officers, and 39 only on complaints made *ab extra*.—Parliamentary Paper, c. 1,152, 1875.

b. The power to detain was extended to cases of overloading and improper loading.

c. The provisions giving power to inspect and to make conditional orders of release were elaborated and strengthened.

d. The provisions concerning payment of expenses and concerning appeal were made more full and explicit.

7. Power was given to vary the requirements as to boats contained in the Merchant Shipping Act, 1854, requirements which it had proved impossible to comply with.
8. It was made criminal in a master, after collision with another vessel, not to stand by and render assistance.
9. A code of signals of distress, which had been prepared and digested by the Board of Trade with the aid of the Admiralty, the Trinity House, the shipowners, and Foreign Governments, was adopted and enforced by law.
10. A general code of pilot signals, formed by the Board of Trade with the help of the Trinity House and other pilotage authorities, was also adopted and enforced by law.

11. Stringent provisions were made concerning the carriage of dangerous inflammatory goods on board ship.

Various other amendments of the existing law were made by the same Act.

In the winter of 1873-74, came the change of Government.

In 1874 no legislation on the subject of unseaworthy ships was attempted, further consideration of the subject being postponed pending the Report of the Royal Commission.

1874.

Chain Cables Act.—Great difficulties having been found in enforcing the Chain Cables Act of 1872, a Bill was brought in retaining the official inspection of testing machines, but making the use of the licensed machines voluntary, so as to enable shipowners and others to avail themselves of the test without their being compelled to do so. The Bill was referred to a Select Committee. The chainmakers urged strongly the necessity of exempting them from the obligation to test, especially in the case of chains intended for sale to foreigners. The Committee, however, would not accept the voluntary principle, but inserted a clause making it penal to sell or purchase an untested chain for a British ship. They did not, however, repeal the enactment of 1871, by which every sale of an untested chain, whether for the use of a ship or not, except as old iron, was made penal, and it is difficult to say what the effect of the Acts as they now stand really is.—87 & 88 Vict., c. 5.

The Committee also inserted a clause to the effect that every contract for sale of a chain should imply a warranty that the chain had been tested, in the absence of a stipulation to the contrary.

And they added provisions to the effect that the test imposed by the former Acts might be made more, but not less, stringent, by orders from the Board of Trade.

It is scarcely possible as yet to say what the operations of this Act will be.

Tonnage Bill.—*Parl. Paper, C. 943, 1874.*—The proceedings of M. Lesseps with respect to the Suez Canal having led to discussion with foreign nations on the subject of the measurement of tonnage, the Government had in 1873 been compelled to take part at an International Commission at Constantinople, in which the laws for measuring tonnage had been discussed by representatives of the principal maritime nations. As to the propriety of adopting the main features of the English or Moorsom system of 1854, by which the internal capacity of the ship was measured, there was little difficulty. The discussions turned principally on the exemptions or deductions from that measurement on

account of engine space, crew space, awning decks, &c. These deductions had led to great evasions, and the question was whether they should continue to exist, or should be more strictly and carefully defined.

The Commission adopted the latter alternative, and recommended certain rules for effecting this object. These rules were embodied in a Bill brought in by Sir Charles Adderley. That Bill was referred to a Select Committee. It came out of their hands a Bill which would have defeated the objects of the International Commission, would have encouraged evasions, and have led to the building of unseaworthy ships. It was consequently dropped.

1875.

Combustion in Coal-laden Ships.—Royal Commission.—Many losses having occurred from spontaneous combustion of coal on board ship, the Government, after strong representations from Lloyd's Committee as to the necessity of careful inquiry, appointed a Royal Commission to consider the subject. That Commission, of which Mr. Childers is chairman, is still sitting.

Fog-signals at Lighthouses.—Before and about this time the Trinity House and the other lighthouse boards gave much attention to the subject of fog-signals. The Trinity House, after receiving a report from the late Deputy Master and another of their body on the fog-signals of the United States, and after some careful and valuable experiments by Dr. Tyndall, are establishing a cordon of fog-signals round the coast of England, as will be seen by the papers referred to.—Parl. Papers, 119, 1873; 188, 1874, and 224, 1875.

Marine Insurance.—Complying with the recommendations of the Royal Commission on Unseaworthy Ships, Her Majesty's Government, in the winter of 1874-5, issued to their representatives in foreign countries a set of questions intended to bring out the law and practice of those countries on the points on which it has been suggested that our own law requires amendment. The answers to these questions have been received and presented. They are now circulated.—Parl. Paper, No. 304, 1875.

Merchant Shipping Bill, No. 116, 1875.—It is unnecessary to give the history of the Merchant Shipping Bill introduced by Sir C. Adderley in February, 1875, of its rivals, of its amendments, of its abandonment, or of the "dramatic incident" which closed its career. It is sufficient to say that it was, as introduced, an honest attempt to carry into effect the recommendations of the Royal Commission.

Unseaworthy Ships.—Of the origin and history of the Act passed at the close of the session of 1875, it is also unnecessary to say anything.—38 and 39 Vict., c. 88.

Its effect is as follows :—

1. In the first place it is only in force until 1st October, 1876. It gives to persons specially appointed for the purpose by the Board of Trade, power to detain unseaworthy ships without previous order from the Board.
2. It prohibits the carriage of a cargo of which more than one-third consists of grain, &c., unless the grain is secured from shifting by shifting boards or otherwise.
3. It amends the clause in the Act of 1871 which makes the sending an unseaworthy ship to sea a misdemeanour by providing—
 - (a.) That the criminal liability shall attach to anyone who attempts, or is party to an attempt, to send such a ship to sea, and to a master who knowingly takes such a ship to sea,
 - (b.) That every ship shall have a registered managing owner, and that if she is sent to sea from any port in the United Kingdom in an unseaworthy state he shall be liable, unless he proves that he has done all he can to prevent it.
4. The Act further provides that every British ship shall be marked permanently with lines on her sides showing the position of her decks.
5. It also provides that the owner of every foreign-going British ship shall before clearance outwards from any port in the United Kingdom mark upon her sides a maximum load-line; and shall insert the distance between this and the deck marks in the entry outwards deposited at the Custom House and in the agreement with the crew.
6. The Act further provides that every contract with a seaman shall imply an obligation on the part of the owner and his agents to use all reasonable efforts to make and keep the ship seaworthy. The effect of this clause is to give the seaman or his family a remedy against the owner. But it does not extend to damage or loss of life caused by the act of a fellow seaman other than the master.

Board of Trade and its Staff.—It may be worth while here to observe that the Staff of the Board of Trade employed on Marine business now comprises the following number of persons, and it is to be remembered that, with the exception of the office of the Registrar-General of Seamen, originally a comparatively small office, this staff has been created since 1850.*—See Parl. Paper, 482, 1871.

* The figures here given are exclusive of the officers appointed and to be appointed under the Act of 1875. As these appointments are not yet completed I have not attempted to include them.

Employment.	Number.	Aggregate salary.
In the Board of Trade and registry of seamen	237	£48,760
Examinations	18	3,355
Mercantile Marine offices	237	24,416
Surveyors, emigration officers, tonnage measurers, recorder of draft of water	154	30,078
Nautical assessors ... ..	...	3,000
	641	£109,609

Besides which a great deal of work connected with ships, seamen, and navigation is done for the Board of Trade by the Customs, the Coast Guard, H. M. Consuls abroad, and other officers.

The creation and growth of this staff in 25 years, notwithstanding constant efforts to keep it within the narrowest limits consistent with efficiency, is a suggestive and reasonable fact.

CONCLUDING REMARKS.

No Want of Legislation.—It will thus be seen that in almost every year during the period I have taken, a period commencing long before the repeal of the Navigation Laws, and lasting for more than a quarter of a century since that repeal, there have been laws introduced and passed, and Committees or Commissions appointed to consider matters affecting the welfare and safety of our shipping and seamen.

My original object was to show that the movers in the present agitation are not the first persons who have had these objects at heart, that the activity and interest on these subjects was increased and not deadened by the repeal of the Protective system, and that if great evils still exist, there is no reason for charging those evils on the apathy of Governments, of Parliaments, or of the Public. In doing this, I have been led into a statement of almost all, if not all measures affecting merchant shipping. That statement is necessarily affected by the nature of my original object, and the measures which bear on the present controversy are given in greater detail than others which are of equal real importance, though of less immediate interest. It must not be supposed, therefore, that I have exhausted the subject, or that there are not many things which have been done or attempted for the benefit of merchant shipping and merchant seamen of more real and vital consequence than the measures suggested by the recent agitation. The removal of restrictions on maritime commerce and on the employment of those engaged in it, for instance, are

matters which, beyond all others, promote the interests of the working class employed, and they do so without any doubt as to a possible balance of evil and inconvenience. But to attempt an exhaustive account of all that has been done, or to give to everything its due relative importance, would be beyond my powers and limits.

What has been the result of these measures ; whether our merchant shipping has benefited by them ; what is its present condition as compared with its condition before the repeal of the Navigation Laws ; and whether the evils and dangers which beset our ships and the seamen who man them, evils, alas, not confined to shipwreck, are greater or less than they were, are questions of the deepest interest, but which do not fall within the scope of my present report.

I have the honour to be, Sir,

Your most obedient servant,

T. H. FARRER.


Board of Trade, October, 1875.

[We need not comment upon the foregoing report, its value is self-evident. Our object in publishing it is to preserve in our pages, for present and future reference, an authorised and trustworthy record of the course of legislation and public action in regard to Merchant Shipping, from 1836 to the present time, a record of which, no doubt, our readers as well as ourselves will appreciate the value. It is a matter for general satisfaction that the information contained in a report by such an authority is, by being presented to Parliament, placed within the reach of those who desire to become acquainted with facts, and to form opinions upon knowledge of those facts.—ED. N.M.]

THE ALBERT MEDAL.—The Mayor of Liverpool has presented an Albert Medal of the second class on behalf of the Queen, on the recommendation of the Board of Trade, to Mr. David Webster, late second mate of the barque *Arracan*, for his gallantry on the occasion of the burning and abandonment of that vessel in February last, while coal-laden and on a voyage from South Shields to Bombay.

EXPLOSIVES.—The Board of Trade have, in pursuance of Section 84 of the Explosives Act, 1875, given notice that no gunpowder or other explosives within the meaning of the Act shall be loaded or unloaded from any ship or boat within the limits of either the Old Harbour or the Harbour of Refuge at Holyhead. A similar notice has also been given with reference to the Government pier at Dover. Notice has also been given of the making of bye-laws relative to explosives at Ramsgate Harbour.

THE SUEZ CANAL.


HATEVER may be thought of the purchase of the Khedive's shares in the Suez Canal, as a stroke of finance, there can be but one opinion upon it as a stroke of policy. The unsettled aspect of affairs in Eastern Europe, owing to the rapid decadence of the Ottoman Empire; the position of the Khedive as a semi-independent, but embarrassed Viceroy; above all the interests of an Indian Empire; pointed to the urgent expediency of England's acquiring a voice, if not a control in the management of the modern highway to the East. The ministerial explanations of the purchase, and of the circumstances which immediately led to it, leave no room for doubt that if England had not availed herself of the opportunity to secure a material interest in the Canal, France would have done so; negotiations for the investment of French capital were on foot, and were only defeated by the promptitude with which the offer for purchase was made by our Government, accepted, and arranged. The Khedive's monetary position was critical; he had locked up in the Canal shares a far larger amount of capital than he could afford to part with from his exchequer, and it became with him a matter of necessity to realize. The terms on which the shares were purchased may be liable to criticism, though viewed simply as a speculation, and having regard to the future of the Canal, we do not think that Her Majesty's Government have much difficulty in defending the transaction. The shares are, for the present, unproductive, but, until they become productive, the Khedive has undertaken to treat the advance upon them as a loan, and to pay interest upon it. The commission of $2\frac{1}{4}$ per cent., paid to Messrs. Rothschild for advancing the money, from which that firm receives some £90,000, may be regarded as a very handsome, perhaps excessive, remuneration for advancing a sum of four millions odd. But if the purchase be politic and justifiable, the cost at which it was accomplished is but a very secondary consideration to a country like England, and having in the results such important interests at stake. But if we turn from the question of finance, to that of the policy involved, we shall be at no loss to recognise the greatness of the opportunity of which Her Majesty's Government have availed themselves, and the magnitude of the results which must flow from this act of statesmanship. In the five years which have elapsed since the opening of the Suez Canal, in 1869, the British tonnage passing along that highway has not only been steadily on the increase, but has almost monopolised the traffic. In 1874, the total number of vessels using the Canal was 1,183, representing a net tonnage of 1,541,251 tons. Of this fleet, 898 vessels, of a net tonnage of

1,209,612 tons, were under the British flag—that is to say, the British tonnage was 71 per cent. of the entire tonnage passing through the Canal in 1874, and when the returns are made up to the close of 1875, they will show a still further increase in favour of the British flag. Such a traffic, connecting two great sections of the commerce of the earth, has been in the hands of a private company, who have framed rules respecting the navigation, and asserted also the right to exercise powers of taxation to an extent by no means justified by the firman under which they were constituted. The vast and increasing interest which England has in the trade through the Canal, has made her naturally impatient of such a state of things, and suggested that to obtain some control in the management of the Canal had become a national duty. The purchase of the Khedive's interest, to the extent of £4,800,000, may not give the required control, but it will assuredly give England a voice—and a potential voice in the control of the new highway. But the true import of the purchase is, that it indicates a policy which will not stop with the possession of the Khedive's shares and the authority which may attach to that possession. England having advanced so far, must go on, not to appropriate the Canal to her own interests by purchase, but to negotiate and carry out an arrangement for the purchase of the Canal by the maritime powers, and for its management under an international commission. In the capitalization of the Sound Dues, of the Stade Toll, and of the Elbe Dues, England took the initiative, and contributed a large, if not the largest, quota. There would be no greater difficulty in the purchase and neutralization of the Suez Canal than there was in effecting those comparatively minor arrangements, by which maritime commerce has so substantially benefited. There would be this difference, no doubt, that, in the three cases named, the capitalization of the dues ended the question. The Governments of Denmark, of Hanover, and of Holland, claimed the right of levying tolls on shipping passing through the Sound and the Belts, the Elbe and the Scheldt. The abolition of the tolls was simply a question of price, and of money payment. The purchase of the Suez Canal will involve the transfer of the works and their maintenance to a commission on which all the leading maritime States would be represented, and who would each have a voice and authority in the management proportioned to the amount of the purchase-money contributed by each State. We have already suggested that a commission, such as that to which the control of the works and navigation of the Danube was subjected, under the Treaty of 1856, would be effective for the management of the Suez Canal in the event of the completion of an international arrangement for purchase of the works. Lord Derby, during the last session, expressed himself in distinct terms as favourable to the project of placing the Canal under an international syndicate, and

his lordship has since, and recently reiterated, this expression of his views as a responsible member of the Government. The truth is, that like most other matters in these days, the transfer of the Suez Canal to an international commission, or syndicate, is but a question of money. The estimated cost of the Canal was £8,000,000 sterling. The subscribed capital was about £18,000,000. But, it is said, the works have cost £19,000,000, or £6,000,000 more than the entire capital. To buy up the existing shares would, therefore, not be a very heavy undertaking, and the debt, in the shape of preference capital, might remain on the concern at the stipulated interest. But these arrangements of ways and means are minor considerations. The Suez Canal being a great international highway, cannot be suffered to remain in the hands of a private company. It is an exalted and imperative duty which England owes to her Eastern Sovereignty, and her vast maritime commerce, to terminate a state of things inconsistent with the interests of both. She has already taken the first step in the direction of securing the position in reference to the modern highway to the East, which it is impossible she could abnegate. The next step will be, as we believe, and as sound policy seems to indicate, in the direction of obtaining the consent of the maritime powers to an arrangement for placing the Canal under international control and management. To such an arrangement no valid objection could be urged; while the advantages which would result to the maritime trade of the world are obvious. The question of the powers of taxation which an international commission should possess, and, indeed, must possess, for the purpose of maintaining the Canal, need not present any difficulty. Such powers are possessed and exercised by the Danube Commission, and by conservancy bodies in various directions much nearer home. So long as tolls are charged on an intelligible and fair basis, merchants and owners of shipping will not object. But especially will they be inclined to acquiesce, when they know that the highway in respect of which they are charged is placed under equitable and responsible control.

EMIGRATION FROM LIVERPOOL.—According to the returns supplied by the emigration officials at Liverpool for the past month, it appears that of vessels "under the Emigration Act," there sailed to the United States seven ships with 588 passengers. Of vessels not "under the Act," there sailed to the United States 27, with 1,174 passengers. There also sailed to Nova Scotia 2 ships, with 34 passengers; Victoria, 2, with 24; West Indies 6, with 72; East Indies 6, with 38; Africa 4, with 32; and South America 6, with 127, making a total of 60 ships and 2,089 emigrants. The number in the corresponding month of last year was 2,900.

DIRECT-ACTING SPRING SAFETY-VALVES.

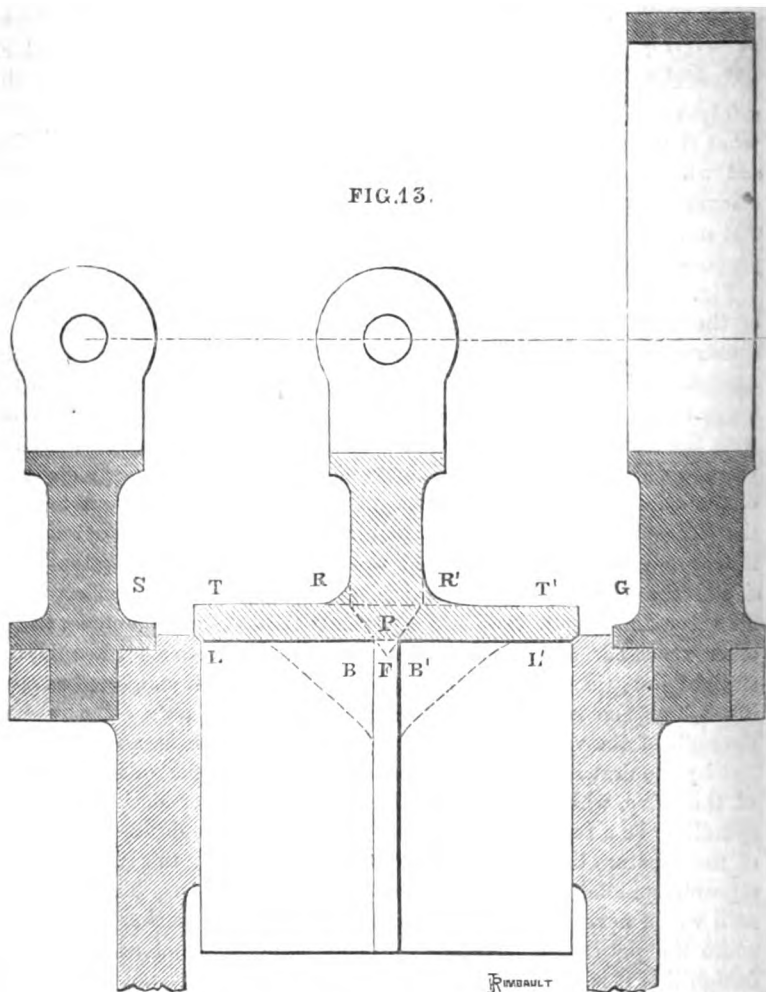


N reading the February number of the *Nautical Magazine* I find a letter from Mr. H. R. Robson, President of the Institution of Engineers and Shipbuilders in Scotland, in which he says I am under a gross mistake in thinking that the safety-valve in question "is"—(I have not said anything whatever about what it "is"; I was speaking about what it "was")—fitted, as he thinks, and which he endeavours to hold up to ridicule. Before proceeding to discuss the point raised, I trust Mr. Robson will understand distinctly that not one word of the argument appertains to him personally. My purpose is to deal with the type of valve, and with that only.

Fig. 13 is the valve, copied as near as possible from the transactions of the Institution, and is half-size. Applying the ordinary rules of construction, T T' is the upper surface of the valve's disc, and, with the exception of its junction with the spindle, is a straight line. L L' is the lower surface of the valve's disc, and, with the exception of its junction with the feathers, is also a straight line, and parallel with T T'. The valve is $4\frac{3}{4}$ " diameter, and $\frac{7}{8}$ " thick in the disc, and the spindle is $\frac{3}{4}$ " diameter, and when pointed in the usual way penetrates right through the disc, as at P. No draughtsman would design such a structure; for if he made T T' a straight line, he would put the boss B B' on the lower side of the valve to support it under the thrust of the spindle, where the valve and spindle were two separate pieces, the one pointed and the other recessed. And if he were to make the lower surface L L' a straight line, then he would cast a boss on the upper side of the valve into which the recess would be drilled, and so maintain the relative strength of the valve at the centre, where strength is most required. But by the drawing there is no boss either on the upper or lower surface of the valve, which shows that the valve was never designed for the spindle to be a separate piece from the valve. Through the whole stages of manufacture there is not a man into whose hands this valve, with a separate spindle, would fall but would detect the error. The draughtsman would never make such a drawing. The pattern-maker would never make the pattern, and it is so glaring a mistake and so unskilled a design that it is a question whether the moulder would not see it. In the usual course of manufacture, it would then pass into the hands of the liner-off of the work, thence to the turner, neither of whom would pass it through their hands without calling their foreman's attention to the fact that the drill would run right through the valve. It would then pass through the hands of the fitter, and he would detect open daylight through its centre. Finally, it would fall into the hands

of the erector, and when he put the load on it the spindle would fall right through the valve, inside the boiler. Then the error would be discovered, by whomsoever made.

FIG. 13.



But that the valve was designed as shown in the drawings of the Transactions of the Institution by Mr. Robson, and that the valve and spindle were one casting, there is the strongest possible evidence. (See fig. 13.) The under-surface of the valve *LL* is a straight line; not a radial line about it, not even at the junction of the feather *F* with the

disc, for the neck is square. But mark the junction of the spindle with the upper surface of the disc. It has a radial line R R on both sides of the spindle, the radius being $1\frac{7}{8}$ " , equal to the thickness of the disc, and equal to half the diameter of the spindle, a very proper radius to give, for it assigns both symmetry and strength to the connection, showing also that there is no necessity for a boss to be on the lower side of the valve, and showing that the draughtsman did his work well, and showing, "above all," and in the most conclusive terms, that the valve and spindle were one solid casting. Compare the draughtsman's work by the radius at stud S. Nobody, not even Mr. Robson, says there is a point and a recess there. Also at the guide G ; it is a solid body radiated to combine symmetry and strength, which every draughtsman would do ; and so also was the spindle and valve radiated at R R, showing them to be one casting, and there it is in the Transactions of the Institution of Engineers and Shipbuilders of Scotland for the session 1873-4, a lasting and undying memorial of one of the greatest errors committed in the practice of engineering, ancient or modern.

The next part of Mr. Robson's letter runs thus :—

"The dead-weight was removed, and a Salter's spring attached, simply to see the difference of accumulation with the different methods of loading.

"I do not take the slightest credit for inventing a safety-valve, but I do take credit for having made an arrangement of springs for loading Government safety-valves of marine boilers, which is 'safer and better' than the old dead-weight, and also for having been the first engineer to get spring-loaded Government safety-valves passed by the Board of Trade surveyors."

In dealing with the above, it will be necessary to mingle the name of the author with the subject, because it will be shown that the statement of safety of his arrangement of safety-valve loading over the old direct-acting dead-weight system is fallacious, and that his reputed tests on board ship, as recorded by himself in his paper before the Institution, are delusive.

At pages 53-4 of the Transactions of the Institution for Session 1873-4, will be found a record of Mr. Robson's tests of safety-valves. It will be understood that the system of valve mechanism employed, in all cases except one, is the lever and Salter's spring-balance ; and in the one exception it is the lever and dead-weight which is used.

In the first test it is purposed to test the action of the direct-acting weight. The steam is got up on the Anchor Line steamship *Australia*, and the valves are loaded to blow off at 35lbs. On the gauge showing 35, the easing gear is slacked back until it registers 28lbs. At this pressure it remains steady for ten minutes. The 7lbs., or 20 per cent.

difference, is added to the 35lbs., making 42lbs., and this is declared to be the action of the dead-weight valve.

The second test is with the same valve and gear, but with the good intention of not touching the easing-gear while the firing is going on, and of seeing if the valves will carry away all the steam; but the unruly fires would not be held in subjection, and the pressure went up to 42½lbs., or 2·1 per cent., and was still going up, when, in Mr. Robson's own words, not wishing to have any more pressure in the boiler, the easing-gear was slacked back. The firing was then continued for ten minutes, the pressure remaining constant.

At the conclusion both tests were declared to be practically alike. And so they were; but by no means in the sense in which Mr. Robson views them, for he considers the first test to prove the accumulation by the direct-acting dead-weight; and, in the second, the accumulation by the lever and spring-balance; but in reality it proves nothing, except that both tests were alike, for the easing-gear was slacked back in both cases.

If the good intention had been carried out in the second test, not to touch the easing-gear, it would have condemned the first test, even on the score that the results of the two tests would not be alike when the lever is acted upon by the steam on the valve, and when it is acted upon by the easing-gear at the extreme end, not to mention the difference of the dead-weight at all, for the accumulation in the second test would probably have been double that of the first. The valve on which these operations took place was 13 per cent. in excess of the size prescribed by the Board of Trade.

The next operation was upon a valve 93 per cent. in excess of the Board of Trade size. The first test was with the lever and dead-weight. The valve was loaded to blow off at 35lbs., and the pressure went up to 46lbs., or 31·4 per cent. The second test was with the lever and spring-balance; the pressure went up to 49lbs., equal to 40 per cent.

The next valve in rotation is a pair of 4½" valves fitted to one piece of boiler, and exactly the size required by the Board of Trade. The valves were loaded to blow off at 40lbs. The easing-gear was again slacked back until the balance registered 38lbs., the 7lbs. were added to the 40, making 47lbs., or 17½ per cent., and this was declared to be the action of the dead-weight valve. The next, and, I hope, last case on record is, the valve was loaded to blow off at 40lbs. The firing was continued without touching the easing-gear, and the pressure rose to 46lbs., or only 15 per cent. of accumulation. And well was the operator rewarded for his self-denial in keeping his fingers off the easing-gear.

These tests are so utterly at variance with known practice, that no reliance can be placed on them. The absence of the dead-weight and the

attempt to assimilate the dead-weight by slacking back the easing-gear by hand of a lever and spring balance system, is a delusion and a snare into which the operator himself has been caught; and the second test, which was intended to leave the easing-gear untouched, closed the trap upon him, for when the accumulation reached 19 per cent., and was still going up, he slacked back the easing-gear. Why did he slack it back? Why did he not let it go up as far as it would go?—he himself gives the answer. Not wishing to have any more pressure in the boiler the easing-gear was slacked back; in other words, he was afraid the boiler would burst. There is an entire absence on the part of Mr. Robson to give the essential elements in his tests, viz., the rate of combustion and the quantity of water evaporated; and in the absence of these, his tests are a mere assertion unsupported by any legitimate evidence and at direct variance with practice.

Mr. MacFarlane Gray, however, does not overlook it, for he reports on the rate of combustion in the steamship *Australia*, as 12lbs. of coal per \square of grate per hour, and this is just what an experienced person would expect, a low rate of combustion and very little steam generated in the boiler, so that there will not be much to pass through the valves.

The tests, however, with the lever and dead-weight, and then the spring balance attached to the same lever, gives a different account of the accumulation. In this case he gets 31.4 per cent. of accumulation with the lever and dead-weight and 40 per cent. with the lever and spring balance, and this with a valve 93 per cent. in excess of the Board of Trade size. What would this have been if the valve had been the Board of Trade size? It would have been considerably over "cent. per cent." But the most wonderful assertion of all is that contained in the last test, wherein he declares the accumulation to be $17\frac{1}{2}$ per cent. with the direct-acting dead-weight, and 15 per cent. with the lever and spring balance. Now, I must tell Mr. Robson that both theory and practice, philosophy and mechanics, are all dead set against the truth of this assertion; but he also adds that the lever and spring balance is safer than the direct-acting dead-weight. The measure of safety of a valve is directly as its power to control the internal pressure, and the liberating power of the direct-acting dead-weight on an ordinary valve is considerably greater than any system of spring loading whatever on an ordinary valve, and the arrangement which Mr. Robson uses is the worst form of spring-loading.

Neither Mr. Robson's tests nor the obsolete arrangement of valve mechanism practised by him is worth any further trouble than verbal condemnation. But certainly the position he occupies as President of the Institution of Engineers and Shipbuilders of Scotland, is one worthy of any man's steel, and from that position I challenge him to prove the truth or fallaciousness of his statement and he must accept this challenge,

for it is neither loosely nor thoughtlessly made. I will make the dead-weight valve of the ordinary type, and he will make the lever and spring balance of the ordinary type of valve, both being constructed according to the Board of Trade rules. And I will undertake to show that there is not truth either in his tests of accumulation for dead-weight valves, or for the safety of the lever and spring balance over the dead-weight, as measured by their relative powers of controlling the internal pressure.

The next part of Mr. Robson's epistle to the *Nautical* is not much in my way as it is rather historical than mechanical, and were it not for the sake of others I would not notice it all. It is to the effect that he claims the introduction of spring-loaded safety-valves on board ship. It is a matter which does not much concern engineers, but I do know that many steamship owners are anxious to know its history and how it came about.

The lever and spring balance as applied by Mr. Robson is as old as I am, whatever more, and I am within fifty days of a half a century old, but the direct-acting spring as applied to safety-valve is of more recent date. It were useless to our purpose to dwell on its outside history. Our immediate purpose is its application on board ship. In February, 1870, I opened works for the manufacture of spring safety-valves only, in Manchester. In the session of 1869-70 I had the honour to read a paper on it before the Institution of Engineers and Shipbuilders of Scotland. This was doubtless the birth of the child. At that time I had a good number working in England, and I had thirty-two working in Scotland, but the statements I then made respecting its action roused the Institution to inquire into it, and I believe I am right, a deputation was appointed to examine it on one of the locomotives in Glasgow; its quick return action had been a puzzle to all engineers, and I believe the deputation found its action to be as stated. The Institution then took the subject up, and appointed a permanent committee, with Mr. David Rowan as chairman, to investigate the whole subject of safety-valves, and lay their report before the Board of Trade. This committee sat for upwards of three years, and the author supplied his quota of valves to the committee for experiment, in all three valves of various sizes. The experiments took place at Mr. Peter Denny's, in Dumbarton; but on the death of Professor Rankine, who was one of the committee, it lost the ablest mind it had. Had it been a purely mechanical subject, the Safety-Valve Committee was capable of dealing with it in half-an-hour; but it was a highly philosophical subject also. The flow of steam from one chamber into another, under pressure, and into air and vacuum, was an unsettled question, and the engineer's knowledge of the spring was, practically, "nil."

In July, 1870, at the *conversazione* of the Institution of Engineers and

Shipbuilders of Scotland, and the Institution of Mining and Mechanical Engineers of the North of England, held at Glasgow, I exhibited a marine and locomotive type of spring safety-valve. In April, 1872, Mr. James Howden read a paper before the same institution on a new rule for determining the area of safety-valves; this paper, although having no pretensions to spring safety-valves in particular, yet dealt as far as the author was able on the philosophy of the subject. Sixty-seven days later, the author read another paper on the spring safety-valve before the United Meeting of the North of England Mining and Mechanical Engineers, the Institution of Engineers and Shipbuilders of Scotland, and the Lancashire and Cheshire Coal Association, at the opening of the New Philosophical Hall, Newcastle-on-Tyne.

Early in 1872, you, Sir, instituted a series of experiments which, for efficiency and grandeur of action, outstripped anything which was done in Scotland, and the termination of those experiments inaugurated the general adoption of direct-acting spring safety-valves on board ship by the Board of Trade. Early in this same year, I received the official authority of the Board of Trade, from Mr. Thomas Gray, to fit my valve on board ship.

The spring being practically a sealed book to engineers, Mr. Traill, the chief surveyor to the Board of Trade, undertook an exhaustive series of experiments. These are now nearly completed, and in a short time I trust the results will appear in the *Nautical Magazine*.

At the death of Rankine (Christmas, 1872) the Safety-Valve Committee was somewhat thrown into disorder, but it was afterwards reformed, with Mr. James Brownlee, to take the place of Rankine. By this time, the author had upwards of 2,000 valves at work on the locomotive and on board ship.

At the December meetings of 1873 and 1874, Mr. Robson turned up, in a paper which he read before the Institution in Glasgow, on the lever and spring balance at the end of it. The subject of this paper was quite as old and unique in its way, as side-lever engines for express locomotives could be.

At the March meeting of the same institution of the same session, the author read another paper on spring safety-valves, the discussion on which was carried forward through the April and in to the following October meeting, and terminated. At that meeting, the institution, and especially Mr. Robson, was taken by surprise when I announced that the Board of Trade had passed upwards of 50 ships with my valves. Mr. Robson was in the chair, and expressed himself so. The next subject was the report of the Safety-valve Committee which was presented, and an able document it is, especially that portion executed by Mr. Brownlee, and if time permits I hope to have something to say on that ere this

subject is closed. I have unwittingly omitted to put in its proper place the part the firm of John Elder and Co. has played. At the *conversazione* in August, 1870, Mr. Jamieson told me he was much inclined to try it, and promised to send me an order. In the latter part of October, 1870, the firm wrote to me to send them tracings of my spring safety-valves. I sent the tracings as requested, and the firm fitted spring valves on to the turret ship *Cyclops*, then building by them, and probably two years before Mr. Robson. Such, Sir, is the short, but it is the cream of the history of spring safety-valves on board ships.

MOLECULAR VORTEX.

The Works of the "Ant and the Bee," Manchester.

ON THE AWARD OF THE MARINE MEDAL TO ITS PRESIDENT BY THE INSTITUTION OF ENGINEERS AND SHIPBUILDERS IN SCOTLAND.


To the Editor of the "Nautical Magazine."

SIR,—The article contributed by me in your January number has produced a commotion of no ordinary kind amongst the members of the Institution, especially those most immediately concerned—viz., the members of the Council. Pacific representations and pacific communications having been made, it has been urged, and I agree with it, that the Institution ought to settle its own business within itself, but in doing so in the case before us I consider it has committed an irretrievable error in making the award. At the same time it must not be forgotten that your position in marine mercantile matters gives you the right and the power to publish criticisms even upon the acts of the Council of the Institution, and in an especial manner when those acts are questioned as being opposed to scientific merit. Since the publication of the article in your January number, it has been generally acknowledged that the paper was not worthy of the medal, and that the article in the January number is enough chastisement for the error; but, it is said, it is done now and cannot be undone, and I do not suppose it is likely the Council will ever again fall into a similar error. This, then, being the case, the object for which the article was written has been attained, and there is now a general opinion that the system of valve loading is worthless.

MOLECULAR VORTEX.

The Works of the "Ant and the Bee," Manchester.

BOARD OF TRADE EXAMINATION FOR MASTERS AND MATES.
(COMMUNICATED.)

“T first the periodical examinations, held at various ports, were comparatively easy. But the crowds of applicants for examination were soon so far in excess of the demand for skilled officers, that the standard of examination was gradually raised, till it now represents, in successful candidates, a very complete knowledge of the art of navigation, as well as of practical seamanship in all its branches. We believe that the amount of knowledge of the method of nautical astronomy now required is amply sufficient; and that if any increase of stringency is found practicable or expedient, owing to the greater spread of education or the increasing popularity of the merchant naval service, it had better be applied in demanding more groundwork than more superstructure. We have already observed that the ingenuity of mathematicians has been applied to devise formulæ, which should be easily worked without a preliminary knowledge of the mathematical considerations on which they are based. We venture to suggest, instead of requiring applicants to take up more, or higher, subjects in navigation, as it is said the Board of Trade intend to do, that the questions already asked should be more thoroughly understood; that formulæ should not be used without their mathematical proof, and that an appropriate diagram should be required to accompany every solution which admits of being solved by construction. It would be possible to pass the Board of Trade examination by learning formulæ by rote, and applying them by means not much to be distinguished from what is called ‘rule of thumb.’ Nevertheless, it has been matter of considerable surprise to us to see the amount and extent of information which our merchant navy officers have proved themselves to possess. Every man holding a Board of Trade certificate has passed through an ordeal of which we can say, from observation, that it is most thorough and searching. It appears to us faulty only in the particular just noted.” The above extract is taken from an article entitled, “Modern Methods in Navigation and Nautical Astronomy,” in the “Quarterly Review” for January, 1876. As the reviewer gives currency to the report that the Board of Trade has under its consideration the raising the standard of examination, we wish to say a few words on what we consider should be the alterations.

At the outset, we say that the examination is no test whatever of a candidate's knowledge; it simply shows that he has learned by rote a few rules, and can, *at the time*, apply them with arithmetical accuracy to a set form of question. Consequently, we cannot agree with the reviewer, that “the standard of examination represents, in successful

candidates, a very complete knowledge of the art of navigation." If it could be shown that the candidates understood what they were doing, and were able to apply the principles to cases in actual practice at sea, it then might be said that their knowledge of the art of navigation was sufficient for all ordinary cases of finding a ship's position. Now the examination is not based on any principle except arithmetical accuracy; there is not the slightest occasion for thought in any problem, the whole aim of the candidate being to work his examples without arithmetical error. The "rule of thumb" worker has just as good a chance of success as the skilled mathematician; and, in practice, it very often happens that the latter is considered the inferior, his superior knowledge of his subject being of less value than the arithmetical accuracy of the former. To remedy this, there should be two changes made in the present mode of conducting the examination. The one, that the questions set to candidates should not be in the stereotyped form in which they now are. The examiner should be allowed to put them in any form he pleases, but care should be taken that the form may have some bearing on what the candidates may possibly expect to find in their sea experience. The other, that the result of the examination should be determined by marks. At present the candidate (in London) commences his work on Monday at ten, a.m., and is allowed till four, p.m., to complete it. He appears again at the examination-room at ten, a.m., on Tuesday; if his work is correct, he receives his pass to be examined in seamanship; if he has errors in his work, he is rejected, or allowed to correct them, at the caprice of the examiner.

We ask, in what examination can a candidate correct his errors after he has had the opportunity of consulting the other candidates, and also his instructor? The most careful of overlookers would find it impossible to prevent some notes of answers to the problems, and even the questions themselves, from being taken from the examination-room, to be worked before the next morning. A system of marks would make this proceeding useless; there would be fewer failures, and there would be a better feeling among the candidates as to the fairness of the examination; for it is difficult for them to understand why A should be allowed to correct his work, while B is not permitted to do so, especially as B is not even told in what way he has failed to be among the privileged candidates. If one is allowed to correct, all should have the opportunity. We may mention that the examination for lieutenants in the Royal Navy is conducted on the mark system, and that the Board of Trade examinations for engineers have for some time been conducted on this principle. In some of our Colonial ports the system has also been introduced.

"More groundwork," rather than "superstructure," is wanted. If the Board of Trade made the first alteration we have proposed, it would

give considerably more groundwork. We are of opinion that the present work is "amply sufficient," but that it would be quite impossible to lay down the rule, "that formulæ should not be used without their mathematical proof." Of course, these mathematical proofs could be committed to memory in the same way that the rules now are, but this would be of no service whatever to the candidate. "An appropriate diagram should be required to accompany every solution which admits of being solved by construction;" this is a suggestion of the right sort. We think that figures should be drawn to show the course and distance in Mercator's Sailing; that is the problem of finding the latitude by a meridian altitude; a figure should be drawn on the plane of the meridian or horizon, showing the celestial object's position, and thence the rule for finding the latitude by the sum or difference of the zenith distance and declination. Raper mentions an instance in which a vessel from the Western Islands found herself at the Orkneys instead of entering the English Channel, and Courts of Inquiry have found that vessels have been lost by a wrong application of this rule. If a candidate were to get in the habit of making a diagram as we propose, it would be impossible for such things to happen. One other diagram should be drawn to show whether the polar distance is greater or less than 90° , for on the ship or the sun crossing the equator, errors are frequently made, and sometimes not discovered until too late, as in the case of the *Merrie Monarch*, which was 1,200 miles out in her reckoning through an error of this kind. If these suggestions were carried out, we think that the officers of the Mercantile Marine would begin to think a little for themselves, and would solve their problems more easily, as they would not require such minute directions for the various cases.

An improvement might be made in making the examination in seamanship, to precede that in navigation and nautical astronomy. A failure in the former compels a candidate to go to sea again for at least six months, while in the latter he may remain on shore for three months. Under the present regulations, he may pass in navigation, and then fail in seamanship. After he has completed his term of six months through failing, he has again to undergo the examination in navigation, in which he has already been pronounced qualified. (This we take to be an official acknowledgment of the weakness of the examination as a test of a candidate's knowledge.) If, then, the order of the examinations was changed, a candidate having failed in seamanship would go to sea to continue his study of that subject, or, if qualified, could pursue his study in navigation on shore until he is competent to solve the required problems. In this way the examinations would be in their natural order, and tend to give every satisfaction to all who aspire to possess a certificate.

The rules now in force with respect to the examination for extra master have caused it to be of no account; such a very small number of masters attempt to obtain the certificate that it might be abolished. If the mark system were to be introduced, a very good opportunity would offer of getting rid of this examination, and, instead of two, three classes of certificates might be given—first, second, and third; the grade of certificate to be given to depend on the result of the first examination for master. Of course we would allow a master with the inferior grade to qualify for a higher-grade certificate at any future time. We are quite sure that the present Chief Examiner, Captain J. F. Trivett, would have no difficulty in devising a satisfactory scheme both as to the qualifications for these certificates and the system of marking.

OUR REPRESENTATIVE AT THE LONDON TAVERN.



SIR,—As your Representative, I attended the great meeting of shipowners at the London Tavern, on the 2nd of last month. It was indeed a great gathering, probably the most important meeting ever convened by the shipping interest since the agitation on the repeal of the Navigation Laws. I looked round upon the faces of 700 shipowners, many of them very well known to me, although I was known to none. Here, there, and everywhere, was to be seen the bustling Donald, rallying the wavering, cajoling the unruly, and making himself as agreeable as possible all round. Truly the atmosphere was heavy with wealth, respectability, and influence; for all the great shipowners and ship-owning companies were represented, all, save one—Mr. John Burns was conspicuous by his absence.

The shipowners had met in such force, partly to vindicate themselves in the face of recent attacks, but chiefly, I imagine, to do what they could to prevent their trade being subjected to any further legislative harassments. Sir, there can be no doubt that the shipowners of this country are an honest, upright, and liberal body; they know it themselves, and said so in their speeches. I know it, and I think the public ought to know it too. Unfortunately, the public do not want to know it, because it really is pleasant to the majority of simple-minded people to have the virtuous and moral side of their nature excited into a state of holy wrath against evil-doers. It is really satisfying to their souls to turn up the whites of their eyes, to look askance at the publican yonder, and to thank God they are not as other men are. Shipowners have

been represented to the public as evil-doers, and the public, implicitly believing it, have indulged in a holy glow of virtuous indignation against such men; and not until some other real or imaginary evil claims the popular attention, will the fire of virtuous wrath die down. Therefore it behoves shipowners to proclaim loud and long that they are no worse than other people, and probably the time will arrive when some other matter forms the subject of popular agitation, that the public will not care to deny the assertions of the shipowners.

As regards the chief object of the shipowners' meeting, it seemed to me, Sir, that many of the speakers were somewhat erratic. Have you not, Sir, over and over again pointed out that two courses only are open in dealing with this matter of merchant shipping legislation? The first course, as I understand you, is to have everything surveyed, inspected, and certified according to rule, and then hold the owner irresponsible; and the second course is to leave the owner responsible and certify nothing, but, at the same time, to give the Board of Trade power to break up a rotten ship, even as some officers on shore have the power to demolish a dangerous building. But some speakers at the meeting, following the brilliant example of Mr. Gladstone, seemed to desire a third course in the matter of Merchant Shipping legislation, viz., that Government officers shall pretend to make surveys of ships, and shall issue certificates for them on make-believe surveys, and this not when the ships are satisfactory to Government officers and are in conformity with Government rules, but are satisfactory to the owners and their own varying idiosyncracies. Moreover, it is desired that the certificate given on such a general inspection shall free the owner from all responsibility. According to this proposed scheme, the shipowner shall submit his ship for a survey, the surveyor shall walk round and take a look at her in a general way, no details are to be noticed, no detailed rules observed, and no precise instructions followed; but, mark this, Mr. Editor, the practice of all surveyors is to be uniform at all ports, places, and times. It will thus be evident to you, Sir, that the remarkable result which would follow such an arrangement would be that the survey and certificate are expected to be given when the owner, and not when the surveyor, is satisfied, and when the owner is not harassed, and the certificate is to hold the owner free from all responsibility afterwards. Sir, I think it is a capital notion from the shipowners' point of view, it would be so nice and comfortable for them to satisfy themselves that their ships were all right, and then, as British subjects, to demand a Government certificate on the strength of their own opinion. If the advocates of this scheme had kept in view the fact that *two* courses *only* are open, they would perhaps not have wandered into the absurdity of hankering after a third one of their own creation which would embody the evils of maintaining a highly-

paid staff, and would lead to imposition of all kinds. Happily for the meeting, this proposal did not take any practical shape ; but, Sir, it is interesting to note some of the influences which are at work to bring about the attitude now taken by the shipowners, and which enable us to read between the lines of their published resolutions.

One expressed grievance of the shipowners was that legislation in regard to their affairs is "fragmentary," but no one was there to remind them that when the huge consolidation Bills have been brought forward from time to time their objections were louder still the other way, on the ground that no one could understand a Bill of 1,000 clauses. But, as they seem all of one mind now on the subject, perhaps something good may result from their unanimity. I remember that in a speech made by Sir Charles Adderley, at Plymouth, he said, "Do not press for consolidation now or you will regret it afterwards ;" and, Sir, I, too, cannot help thinking that if consolidation is carried out in philanthropic haste, repentance will follow in philosophic leisure. There are other matters of far greater moment that require immediate settlement, and the consolidation question will only stop the progress of more important matters. I fear, however, that the shipowners will not drop either the "third course" or consolidation, but will allow these matters to clog the legislative wheels, to waste time, and to create differences amongst themselves.

The most serious point urged by the shipowners against the existing state of things is that they want a Court of Appeal, not from the harassment of Mr. Plimsoll, but from the harassment of the Board of Trade. One shipowner from Glasgow thought this Court of Appeal should be the Local Marine Board wherever established. At first I thought this was intended for a joke ; but the proposer was serious. It is well known that Local Marine Boards consist of shipowners in active business, and thus the shipowners would become their own judges. For instance, if a ship of a Liverpool shipowner is detained at Liverpool, the Board of Liverpool shipowners elected by the body of Liverpool shipowners should, according to this proposal, be the court of appeal against the naughty surveyor. But, although this proposition was received with cheers, to you, Sir, and to me it has a somewhat onesided aspect, and I fear the faces of seamen and master mariners would grow long and the wrath of philanthropists would wax hot if the Bill now before the House proposed to make it law. There is, however, a great deal of justice in the demand of the shipowners for a court of appeal. Such a court for dealing speedily and effectually with the numerous questions which arise between shipowner and surveyor ought to be found, and, what is more, ought to be used. The public, too, will gladly support the establishment of such a Court. Under the present system it is not

publicly known who are the shipowners whose ships are supposed to be overloaded ; but in a public court every one will know it. The officer will then be expected to stop every ship he thinks suspicious, and leave the decision of the case to the Court of Appeal. Oh ! my dear Sir, what a great relief this will afford to the shipowner, who will know that he can at length obtain justice, and publish his case to the world ; and what a relief to those who, with aching heads, now have to stand reproaches from all sides. Depend upon it, Sir, the right thing to be advocated is a Court of Appeal, with rapid and public discussions and decisions.

Several of the speakers thought it was too bad that a single officer of the Board of Trade should have power to record the draught of water of a ship ; and I am inclined to agree with them, for if three or more officers were to act together, disputes would be avoided, and justice would be more likely to be done to the shipowner.

One very remarkable point showed itself in the general discussion, for certain shipowners who condemned vigorously the present Board of Trade instructions and surveys of passenger ships proved conclusively that their own ships, which had for many years been subject to those regulations and surveys, and had carried passengers, were the safest and best of ships afloat. Thus these gentlemen met to curse Government interference, but in the case of their own ships they unconsciously blessed it altogether.

That the shipowners may have great good luck and more power to their combination, but that they will not altogether spoil their case by hankering after that impossible *third* course, or by worrying for consolidation, which is not so much wanted as other things, is the fond hope of

YOUR REPRESENTATIVE.

The following are the resolutions passed at the meeting :—

“ 1. That this meeting is of opinion that the recent and continual changes in the laws relating to merchant shipping have been most inconvenient and harassing to shipowners ; that such legislation has necessarily been fragmentary and ill-considered, and that it is highly desirable that the existing law should be simplified and codified ; and this meeting is further of opinion that the support of shipowners will be accorded to any well-considered measure necessary for the saving of life at sea that may be submitted to Parliament during the ensuing session.”

“ 2. That there should be a local appeal immediately available, of a nature satisfactory both to the Board of Trade and the shipowner, to deal with all questions of unseaworthiness or overloading, and that there should be a general Court of Appeal on questions arising out of construction or design.”

"3. That this meeting protests against that portion of Section 4 of the Merchant Shipping Act of 1875, which imposes upon the ship-owner a responsibility unknown in the jurisprudence of this country."

"4. That this meeting is of opinion that the present extent of interference with the trade of shipowning, in consequence of instructions issued by the Board of Trade to their surveyors, is productive of such serious and unnecessary delay and expense, as to place British shipping at a great disadvantage in comparison with foreign vessels, which are free from such restrictions."

"5. This meeting regrets that, notwithstanding all that has been done to secure better food and accommodation for seamen, and for their general welfare, a large proportion of the annual casualties is caused by their inefficiency, intemperance, and negligence, as appears from the evidence taken by the Royal Commission; and that great risks are incurred, and losses sustained, by the desertion of seamen at home and in foreign and colonial ports."

"6. That this meeting protests against the power given by Section 2 of the Merchant Shipping Act, 1875, enabling so small a proportion as one-fourth of the crew to have a vessel detained."

"7. This meeting denies that over-insurance has been general, or even frequent; and records its deliberate judgment against any interference of the present laws relating to marine insurance."

"8. That a Standing Committee, to meet in London, be formed of representatives of the Associations present this day, and of other kindred societies, to watch legislation in the ensuing session of Parliament, and that the various Associations be requested to appoint representatives thereto."

"9. That a deputation from this meeting be appointed to wait upon the Government to present these resolutions."

THE FUGITIVE SLAVE CIRCULARS.—The following are the Commissioners to inquire into and report upon the nature and extent of international obligations applicable to questions as to the reception of fugitive slaves by her Majesty's ships in the territorial waters of foreign States:—The Duke of Somerset, Sir Alexander James Edmund Cockburn, Sir Robert Joseph Phillimore, Mr. Montagu Bernard, D.C.L.; Sir Thomas Dickson, Archibald, the Hon. Alfred Henry Thesiger, Sir Henry Thurston Holland, Rear-Admiral Sir Leopold George Heath, Sir Henry James Summer Maine, Sir George Campbell, Mr. James Fitzjames Stephen, Q.C., and Mr. Henry Cadogan Rothery, Registrar in Ecclesiastical and Admiralty Causes.

BOOKS RECEIVED.

Charts of Wrecks, Casualties, and Collisions. By W. Kuhlow.
London: T. Bruckmann.

A WORK is just published in the shape of eight grapho-statistical diagrams, showing the wrecks, casualties, and collisions on the British coasts during the period of the last ten years.

The author, who is known as a trustworthy statistician, bases his work on official reports. His charts show in ingeniously constructed diagrams, inserted in a scale—all of which are comparable one with another—the disasters occurring in each month for ten years, and the number of vessels lost or damaged, and also the amount of lives lost.

Further, he shows on other charts how much each part of the coasts, the direction and force of the winds, and other causes, are concerned with maritime disasters, which, together with the destructive elements, make up the total. The work, for the effective manner in which mere official numbers and facts are marshalled into a series of clear and convincingly perceptible diagrams, is highly creditable to the ingenuity and perseverance of the author; and those who wish to consult the statistics of loss of life and property in the waters adjacent to our own country, a subject now of greatest interest, cannot do better than consult Mr. Kuhlow's charts.

History of Merchant Shipping and Ancient Commerce. By W. S.

Lindsay. Vols. 3 and 4. London: Sampson Low, and Co. 1876.
We cannot in the present number do justice to these admirable volumes. We are absolutely crammed with matter which we consider it necessary to publish. In our next number we certainly shall endeavour to tell our readers at length how very highly we estimate these further instalments of Mr. Lindsay's great work. But while reserving their internal merits for further consideration, we are now able to say that as regards external appearance, type, illustrations, and other accessories to literary work, Mr. Lindsay's books are all that can be desired, and are as deserving of a place on the drawing-room table as in the office of the shipowner or the study of the statesman.

The Compleat Angler, or The Contemplative Man's Recreation. By Isaak Walton. Being a facsimile reprint of the first edition, published in 1653. Elliot Stock. 1876.

THE traveller is often puzzled to know what book to take with him to while away the tedium of a sea voyage; he wishes for something more

satisfying than the novel of the present day, and yet has no taste for study. We therefore take the liberty of introducing an old friend with a new face, or it would be more appropriate to describe it as an old friend with his genuine old face, for this is no mere drawing-room book, all gold and glitter with the newest and most fashionable type, but a facsimile, exactly in the press in which that gentlest of gentle anglers would, were he to revisit us, wish to see his work clothed. It would be a work of supererogation to say one word on the subject matter of a work that has stood the test of upwards of two centuries, and which has been the delight of thousands of readers, yet, like one of the fish that dear old Isaak was so fond of expatiating upon, and for which he gave such minute directions for stuffing and baking, it is all the more piquant from being dressed exactly in accordance with his own directions. Besides which, when at sea, the green meadows, the running stream or the babbling brook are beyond the ken, there is no book the perusal of which will carry one away in imagination to *terra firma* more effectually than this, and although the reader may be beyond the angling, he may "hate contentions, and love *quietnesse*, and *vertue*," and our old friend will be sure to soothe the troubled spirit even on ship board.

OUR FOREIGN TRADE.—The Board of Trade returns show that the decrease of 16 millions in the declared value of the British and Irish produce and manufactures exported in the year 1875, as compared with the amount in the preceding year, occurred chiefly in the exports to foreign countries. These amounted to £152,415,850, or less by £14,862,179 than in the preceding year. The exports to British possessions abroad were of the value of £71,078,720, a decrease of only £1,201,372. The increase in the value of our imports, on the other hand, was chiefly in our trade with British possessions. Our imports from foreign countries in 1875 were of the value of £289,144,196, showing an increase of £1,224,334 over the amount in the preceding year; but there was nearly double that increase in our imports from British possessions, which reached the value of £84,486,221, or more by £2,323,382 than in the preceding year. The total imports of merchandise into the United Kingdom in 1875 reached the value of £373,630,417, the largest value ever attained.

AN INCREASED NAVAL RESERVE.—The inducements recently offered to Mercantile training-ships to bring forward boys for the Naval Reserve (3rd Class) will, it is believed, occasion a considerable number of entries. For each boy thus entered the Admiralty will pay £3 to the funds of the training-ship, and also provide the boy with some distinctive uniform.

CORRESPONDENCE.

COMPOUND ENGINES.

To the Editor of the "Nautical Magazine."

London Works, Renfrew.

SIR,—In page 48 of your January number for this year is a statement from Messrs. James Jack, Rollo, and Co., engineers, Liverpool, claiming credit for having engined on the compound principle the first steamer to cross the Atlantic, and that its name was the *Holland*.

We respectfully beg to state that such is not the fact, as the Anchor Line steamship *India*, 2,500 tons, built and engined by us in 1867, was the *first*; this vessel having made several voyages to New York previous to the *Holland*.

Yours, &c.,

WM. SIMONS & CO.,

29th January, 1876.

Shipbuilders and Engineers, Renfrew.

RANDERS FIORD.

To the Editor of the "Nautical Magazine."

DEAR SIR,—The following instructions for Randers fiord, drawn up by authority of the Harbour Commissioners of the port, have been sent to us for publication by Mr. Michaelsen of Randers. January, 1876:—

The entrance to Randers fiord is in lat. 56° 36' N. The average depth of water on the bar is 12 Danish feet (12½ English feet).* At Udbyhøi, within the entrance, there is good anchorage in 4 to 5 fathoms.

The town of Randers, on the north bank of the fiord, about 14 miles from the entrance, has a good trade, the export of grain being considerable. The depth in the channel from Udbyhøi to Møllerup is about 12 feet (Danish) and from Møllerup to Randers and in the basin it averages 11 feet (Danish); in the course of a few years it is intended to increase the latter depth to 12 feet (Danish). If a pilot is not employed, vessels must nevertheless pay half-pilotage rates, or perhaps in future only beaconage. On making the usual signal, a pilot will board the vessel outside the bar, unless prevented by stress of weather, in which event a signal indicating the depth in the channel will be hoisted at the pilot-houses at Udbyhøi, on the south side of the entrance, and pilots will

* 10 Danish feet equal 10·2972 English feet; 12 equal 12·3566 English feet.

assist in a boat inside the bar. The signal will be made with balls (or balloons) hoisted beneath each other upon a staff as follows:—

1 ball indicates a depth of 10 feet (Danish)	
2 " " 11 "	
3 " " 12 "	
4 " " 18 or more "	

If contrary winds prevent a vessel from entering, a tug-steamer may be obtained by hoisting a flag in the shrouds; the charge is fixed at a moderate rate.

When making Randers fiord from northward, it is necessary to keep the lead going to guard against Boels reef; a depth of $8\frac{1}{2}$ fathoms is sufficiently near to approach the shore. Approaching from eastward the shoal patch, known as Tangen bank, must be guarded against. Two beacons (as annexed) stand on the southern side of the entrance of the fiord; one is erected on the rising ground at about half a mile from the beach, the other is on a rocky patch near the extremity of a sandy spit. These two beacons in line indicate the course from seaward to the entrance of the fiord. At 2 cables from the outer broom beacons a bell-buoy is moored to warn vessels in foggy weather.



The course from sea as far as Udbyhoi is shown by red buoys on the north side and white buoys on the south side; these buoys are in winter replaced by floating buoys with blue and white flags.

The course from Udbyhoi to Randers is likewise indicated by brooms with heath on the northern, and straw (bound downwards) on the southern side. If necessary to anchor outside the entrance, the best place is in $8\frac{1}{2}$ fathoms N.E. from the outer broom.

JAMES IMRAY & SON, 89, Minories, London.

NAUTICAL QUESTION.

(1.)

To the Editor of the "Nautical Magazine."

22, Victoria Street, Bristol, Feb. 19, 1876.

SIR,—There has been a discussion between Mr. White, of Bristol, and myself on the following question, and it has been decided to refer the matter to you for your decision. Will you kindly say "Yes" or "No" in your next issue, and oblige,

Your respectful and obedient servant,

C. H. BEDINGFIELD.

Given the position of Dover, lat. $51^{\circ} 08' N.$, long. $1^{\circ} 19' E.$, and that of Calais lat. $50^{\circ} 58' N.$, long. $1^{\circ} 51' E.$, is it possible for a vessel to be in such a position as to have the following bearings at the same moment :—

Dover, W. $\frac{1}{2}$ S., True.

Calais, E.S.E., ,,

(2.)

To the Editor of the "Nautical Magazine."

SIR,—Having heard that Mr. Bedingfield, of Bristol, has written asking your opinion on a question, and, feeling certain that the question put to you is not in the light shown over our discussion, I have taken the liberty to send you a true statement of our discussion, as well as a solution of the question.*

Mr. B.'s query to you is, I am told, as follows :—"Is it possible for a vessel to have the following bearings in one position at the same moment?" This is a side wind, and by which you could not read our position. Our discussion is: That, *granting one or both bearings to be as much as two points out*—a fact Mr. B. has omitted in his letter to you—the question would be equally solvable, and not impossible; of course the result would differ a little.

I think the question is taken from "Robertson's Elements of Navigation," dated 1780. Since that time the variation on our charts has been altered, and the latitudes and longitudes of places computed far more exact; so that to prick off the bearings W. $\frac{1}{2}$ S. and E.S.E. on a modern chart is no criterion.—Awaiting your decision,

I remain, yours respectfully,

JNO. WHITE.

Navigation School, 44, Prince Street, Bristol.

(1.) The reply to the question of C. H. Bedingfield is simply *No*.

The E.S.E. true bearing from Calais will lead to the westward of Dover in the neighbourhood of Shakespeare's Cliff.

And the W. $\frac{1}{2}$ S. true bearing from Dover will in no place cross the first-named bearing from Calais, but will lead about $10\frac{1}{2}$ miles to the north of that place. The only intersection of the above lines of bearing will be

* This "solution" we do not print, as it does not appear to us to decide the question.

inland 8 miles from Dover, which will then bear *E. $\frac{1}{4}$ N.*, and Calais will bear at the same time *E.S.E.*—both true bearings.

(2.) The letter of Mr. White, of Bristol, does not at all clear up the matter.

For if we are to admit his assumption, that one or both the bearings may be as much as two points in error, then under this change in the conditions of the question we may admit at once that it is possible; but *the question is destroyed*. Any change in the variation will not assist Mr. White in the least, for such change will affect both bearings equally, and the known positions of Dover and Calais remain nearly the same.

Mr. Bedingfield's statement appears to us to be clear and intelligent and admits of a direct and decisive answer; but we are unable to make anything satisfactory of Mr. White's statement.

NAVAL EXPENDITURE FOR 1876-77.—The rumours of a very large increase in the Navy Estimates for the forthcoming financial year have little foundation in fact, the strength of the *personnel* being the same and any increase, in the votes dealing with the officers and men, will be due mainly to the higher price of provisions and stores. As to the *matériel*, Parliament will probably be asked to grant slightly increased demands for building new ships to replace some of those which have been removed by the present Admiralty on the discovery of their uselessness for fighting purposes.

We have to record the death of another naval surveyor in Lieutenant Francis J. Gray, commanding H.M. ship *Nassau*, employed surveying the East Coast of Africa. Previous to leaving the Mozambique Channel for the Cape to recruit his crew, Lieutenant Gray ascended the well-known Table Mountain, near Mozambique, to fix its position and while on this service he was seized with fever from which he did not recover, and he died on board his ship off Natal on the 15th December, 1875. It may be remembered that Lieutenant Gray, Navigating Lieutenant of the same vessel, was promoted to the rank of lieutenant for gallantry in resisting the attacks of some natives on the Sulu Sea, and afterwards was given the command of the *Nassau*. His long deferred *real* promotion to the rank of Commander was accorded him after the date of his death and was on its way when the sad news arrived. As a Surveyor, Lieutenant Gray was second to none, and as a gentleman and friend he was superior to many. His loss is great both to his country and his friends.

MONTHLY ABSTRACT OF NAUTICAL NOTICES.

No.	PLACE.	SUBJECT.
40	ENGLAND—Medway River	Intended Light on Queenborough Spit.
41	SPAIN—Vigo Bay	Establishment of New Buoys.
42	CENTRAL AMERICA—West Coast—Port Realejo —Cardon Island	Establishment of a Light.
43	BAY OF FUNDY—Beaver Harbour	Establishment of a Harbour Light.
44	TASMANIA—Banks Strait	Discovery of a Sunken Rock.
45	AUSTRALIA—Queensland—Cleveland Bay— Ross Creek	Establishment of a Light.
46	CHINA—Formosa Strait—Ockseu Island	Exhibition of Permanent Light.
47	CHINA—Yang-tse-Kiang—Wasung River— Liamore Lighthouse	Establishment of Fog-Signal.
48	UNITED STATES—Vineyard Sound—Shovelful Shoals	Alteration in Light.
49	UNITED STATES—Delaware—Cape Henlopen	Establishment of Fog-Signal.
50	ADRIATIC—Cape Promontore—Porer Rock	Exhibition of Permanent Light.
51	ADRIATIC—Trieste Bay—Port Pirano	Establishment of a Harbour Light.
52	NEWFOUNDLAND—Fortune Bay—Harbour Briton	Alteration in Light.
53	ADRIATIC—Cattaro Gulf—Cattaro	Establishment of a Harbour Light.
54	ADRIATIC—Port Umago	Alteration in Light.
55	VANCOUVER ISLAND—Victoria Harbour—Berens Island	Establishment of a Harbour Light.
56	GULF OF FINLAND—Revelstone Light-Vessel	Alteration in Fog-Signal.
57	NORTH SEA—Elbe River—Light-Vessel near Cuxhaven	Further particulars of Light, &c.
58	HINDOSTAN—Karachi—Breakwater Light	Establishment of Harbour Light.
59	NORTH SEA—Elbe River—Hamburg	When Exhibited.
60	SUMATRA—Malacca Strait—North Entrance— Pulo Brasse	Exhibition of Auxiliary Light.
61	SUMATRA—Between Pulo Nias and Sumatra	Discovery of an Island.
62	NEW ZEALAND—Middle Island—West Coast— Stewart Breaker	Description of the Shoal, &c.
63	NEW ZEALAND—Middle Island—West Coast— Cape Foulwind	Intended establishment of a Light.
64	NEW ZEALAND—Middle Island—West Coast— Builer River	Directions for the River.
65	NEW ZEALAND—North Island—West Coast— New Plymouth	Establishment of a Harbour Light.
66	ENGLAND—West Coast—Menai Strait— Beaumaris	Alteration in colour of Pier Light.
67	GULF OF RIGA—Messaragotsem Point	Alteration in Light.
68	NORWAY—South Coast—Langesund—Langö- tangén Island	Alteration in Light.

NAUTICAL NOTICES.

40.—ENGLAND.—*Medway River.*—*Queenborough Spit.*—It is intended to erect a beacon lighthouse on Queenborough spit, from which a *fixed*

white light of the sixth order will be exhibited; it will be elevated 80 feet above high water, and will be seen 5 miles. The lighthouse will be erected in 6 feet water, about 80 yards S.W. from Queenborough spit buoy; it will consist of an iron house fixed on wooden piles. It is also intended to exhibit two *red* leading lights on Queenborough pier. They will be seen 3 miles.

41.—SPAIN.—*Vigo Bay*.—Information has been received that new iron buoys have been placed to mark the shoals in Vigo bay, viz.:—

1. *Castros da Barra*.—A *nun* buoy, painted *red and black in vertical stripes*, with *staff and cage*, marked *Castros*, is moored in 9 fathoms off the south part of the shoal.

2. *Borneira*.—A *nun* buoy, painted *red and white in vertical stripes*, marked *Borneira*, in 6 fathoms, off the south part of Bajo Borneira. At a distance of 1 cable, north of the buoy, there is 8 fathoms.

3. *Zalgueiron*.—A *can* buoy, painted *red with a white top*, in 7 fathoms, close to the south-eastward of Zalgueiron rock.

4. *Rodeira*.—A *can* buoy, painted *black and white in horizontal stripes*, with *staff and cage*, marked *Rodeira*, in $4\frac{1}{2}$ fathoms, off the south part of the shoal.

5. *Toralla*.—A *red nun* buoy, with *staff and cage*, marked *Bondania*, in 7 fathoms off Toralla islet.

6. *Cabor de Mar*.—A *red can* buoy, with *staff and cage*, off Cabor de Mar, in $7\frac{1}{2}$ fathoms.

7. *Bouzas*.—A *can* buoy, *red and white in vertical stripes*, with a *red band* round the top, marked *Bouzas*, in 5 fathoms, off the shoal El Cabezon.

Note.—The beacon on Piedra de Pago is bent and not seen at half tide.

42.—CENTRAL AMERICA.—*West Coast*.—*Port Realejo*.—A light is now exhibited from a lighthouse on the north-east point of Cardon head, Cardon island, Port Realejo. The light is a *fixed white* light, elevated 64 feet above the sea, and should be seen 13 miles. The lighthouse, 33 feet high, is built of wood, and painted white. Position, as given, lat. $12^{\circ} 27' 55''$ N., long. $87^{\circ} 7' 47''$ W.

Note.—The centre of Cardon channel, which is the proper entrance into port Realejo, is about half a cable northward of the lighthouse, and is navigable for large vessels. The false entrance, southward of Cardon island, is now navigable for small vessels and boats only.

43.—BAY OF FUNDY.—*Beaver Harbour*.—A light is now exhibited from a lighthouse on Drew point, western side of Beaver harbour. The

light is a *fixed white* light, elevated 45 feet above high water, and should be seen between the heads of the harbour, from a distance of 10 miles. The tower is a square wooden building, 36 feet high, painted white, and attached to the keeper's dwelling. Position, lat. $45^{\circ} 8' 45''$ N., long. $66^{\circ} 44'$ W.

Note.—There is good anchorage between the light and the buoy, E. by N. from it.

44.—TASMANIA.—*Banks Strait.*—Information has been received of the existence of a sunken rock in Banks strait, off the north-east coast of Tasmania, and in the track of trading vessels between Melbourne, Hobarton, and New Zealand. This danger (*Riddell rock*) has 10 feet over it at low-water spring tides, and lies 3 miles from the shore. From the rock, Black Reef bears W. by N. $\frac{1}{2}$ N., distant 3 miles. This bearing and distance places the rock in lat. $40^{\circ} 51' 15''$ S., long. $148^{\circ} 19'$ E. The position of the rock had previously been indicated by a note on the chart.

45.—AUSTRALIA.—*Queensland.*—*Cleveland Bay.*—A red beacon light is now exhibited from a pile at the outer end of the breakwater, on the west side of the entrance to Ross creek.

46.—CHINA.—*Formosa Strait.*—*Ockseu Island.*—With reference to Nautical Notice, No. 128 (July, 1874), on the intended establishment of a light and the exhibition of a temporary light, on the high, or west Ockseu island, further notice has been given that the permanent light is now exhibited. The light is a *revolving* light of the first order, showing a *white flash every minute*, elevated 286 feet above the sea, and should be seen 24 miles. The tower, 64 feet high, is round, built of stone, and painted black; the keeper's dwelling and wall are painted white. Position, lat. $24^{\circ} 59'$ N., long. $119^{\circ} 28'$ E. The temporary fixed light referred to in the above-named notice has been discontinued.

47.—CHINA.—*Yang-tse-Kiang.*—*Wusung River.*—A fog-bell has been established at Lismore screw pile lighthouse, entrance to Wusung river. In thick or foggy weather the bell will be sounded at intervals of *six seconds*.

48.—UNITED STATES.—*Vineyard Sound.*—*Shovelful Shoals.*—The following alteration will be made in the colour of the light exhibited from the Shovelful shoals light-vessel off Monomoy point, east entrance to Vineyard sound—viz., the light will be changed from a fixed white light to a *fixed red* light.

49.—UNITED STATES.—*Delaware.*—*Cape Henlopen.*—A first-class steam siren is now established 400 yards S.S.W. from the Beacon lighthouse on Cape Henlopen. In thick and foggy weather the siren will give a blast of *six seconds'* duration, with intervals of *thirty-nine seconds*.

50.—ADRIATIC.—*Cape Promontore*.—*Porer Rock*.—With reference to Nautical Notice, No. 244 (November, 1875), on the exhibition of a provisional light during the alteration of the light apparatus on Porer rock, Cape Promontore, further notice has been given that the permanent light is now exhibited from the lighthouse. The light is a *fixed white* light, of the third order, elevated 111 feet above the sea, and should be seen 16 miles. The provisional light has been discontinued.

51.—ADRIATIC.—*Trieste Bay*.—*Port Pirano*.—A *fixed green* light is now exhibited from a lantern at the head of the new mole at Port Pirano. It is elevated 22 feet above the sea, and should be seen two miles.

52.—NEWFOUNDLAND.—*Fortune Bay*.—*Harbour Briton*.—The following alteration has been made in the light on Rocky point, Harbour Briton, viz., the light has been changed from a fixed red light to a *fixed white* light, excepting in a line with the Harbour rock, in which direction it will show a ray of red light. The wooden tower is painted white.

Note.—In entering the harbour, give Rocky point a good berth, leaving it on the port hand, until past the red ray of light.

53.—ADRIATIC.—*Cattaro Gulf*.—*Cattaro*.—A light is now exhibited on the north-west point of Cattaro. The light is a *fixed* light, showing red from the northward towards Persagno and white towards the town; it is elevated 12 feet above the sea, and should be seen two miles. Approximate position, lat. 42° 25' N., long. 18° 45' E.

54.—ADRIATIC.—*Port Umago*.—With reference to Nautical Notice, No. 285 (December, 1875), on the establishment of a harbour light at the extremity of the mole, Port Umago, further notice has been given that the limit of visibility has been extended, and that it is now visible through an arc of 280 degrees, between the bearings of N.N.E. $\frac{1}{4}$ E. and N.W. by W.

55.—VANCOUVER ISLAND.—*Victoria Harbour*.—*Berens Island*.—A *fixed blue* light is now exhibited from a lighthouse erected on Berens island; it is elevated 44 feet above high water, and should be seen six miles. The tower, 80 feet high, is built of wood, attached to the keeper's dwelling, and painted white. Position, lat. 48° 25' 20" N., long. 123° 24' W.

56.—GULF OF FINLAND.—*Revelstone Light-Vessel*.—The following alteration has been made in the fog-signal of the Revelstone light-vessel:—A fog-whistle has been established, which in thick or foggy weather will be sounded for *thirty seconds* at intervals of *one minute*. With the wind the whistle will be heard from a distance of about six miles, and against the wind from a distance of about one mile.

57.—NORTH SEA. — *Elbe River.* — *Cuxhaven.* — With reference to Nautical Notice, No. 6 (January, 1876), on the establishment of an additional light-vessel near Cuxhaven, the following additional particulars have been given:—The *fixed* white light is elevated 25 feet above the sea, and should be seen 6 miles. From the light-vessel the lighthouse at Cuxhaven bears S. $\frac{1}{4}$ E.; from the light-vessel the Neuwerk high lighthouse bears W. by N. $\frac{1}{4}$ N. In thick or foggy weather the ship's bell is rung for *one minute* every quarter of an hour, and if a vessel is noticed steering a wrong course, guns are fired in the daytime, and a blue light is exhibited at night. When the light-vessel is not in position by reason of the ice, the light is not exhibited, and the wicker cage on the mainmast is removed.

Note.—It is not yet decided whether the light-vessel will be permanently established.

58.—NORTH SEA.—*Elbe River.*—*Hamburg.*—A fixed *red* and *green* light, of the sixth order, is now exhibited at the west corner of the Sandthor Quay, Hamburg. The light shows red towards the Ostergatt, and *green* towards Sandthor harbour.

59.—HINDOSTAN.—*West Coast.*—*Kurachi.*—With reference to Nautical Notice, No. 160 (July, 1875), on the establishment of a red light at the outer extremity of the breakwater extending from Manora point, information has been received that the light is exhibited *during the fine season only*.

60.—SUMATRA.—*Malacca Strait.*—*Pulo Brasse.*—With reference to Nautical Notice, No. 251 (November, 1875), on the establishment of a light on the north point of Pulo Brasse, and the intended exhibition of an auxiliary light, the auxiliary light is now exhibited below the principal light. The auxiliary light is a *fixed red* light, visible through an arc of 90 degrees between the bearings of S. by E. $\frac{1}{2}$ E. and E. by N. $\frac{1}{2}$ N., elevated 480 feet above the sea, and should be seen 8 miles. The light indicates the positions of the islands and shoals that lie to the north-west.

61.—SUMATRA.—A low barren island (Konig Willem Island) has been discovered in the strait between Pulo Nias and Sumatra, lying S.E. $\frac{1}{2}$ E. from Pulo Doca, and about 8 miles eastward of Konig Willem island is a white rock, and two miles from this rock the sea was observed to break. Position of the island, lat. $1^{\circ} 24' N.$, long. $98^{\circ} 17' E.$ White rock, lat. $1^{\circ} 27' N.$, long. $98^{\circ} 24' E.$

62.—NEW ZEALAND.—*Middle Island.*—*West Coast.*—*Stewart Breaker.*—The danger known as *Stewart breaker* (*Kiourangi shoal*), lying off Kiourangi point, has been examined and found to be a rocky shoal, nearly three-quarters of a mile long and half a mile broad, having near

its southern end a depth of $8\frac{1}{2}$ fathoms. From the shoal part Kionrangi point bears S.S.E. $\frac{2}{3}$ E., distant $4\frac{1}{2}$ miles. This bearing and distance places the danger in lat. $40^{\circ} 44' 40''$ S., long. $172^{\circ} 12' E.$

Note.—In heavy weather this shoal should be approached cautiously. The passage inshore of it is clear of danger.

63.—NEW ZEALAND.—*Middle Island.*—*West Coast.*—*Cape Foulwind.*—A lighthouse is in course of erection on Cape Foulwind, west coast of the Middle island. The light (which is expected to be exhibited in June or July, 1876) will be a *revolving* light, attaining its greatest brilliancy every half minute.

64.—NEW ZEALAND.—*Middle Island.*—*West Coast.*—*Buller River.*—The bay eastward of Cape Foulwind, as also the entrance to the Buller river, have been surveyed, and the following directions given, namely:—Vessels taking shelter in the bay should, with the wind from seaward, get under way on the ebb tide, as the floods sets towards the Steeples. The bar at the entrance of the Buller river lies E. $\frac{3}{4}$ N., $5\frac{1}{2}$ miles from the outer Steeple. Vessels bound for the river should be guided by the signals made at the flagstaff, and in crossing the bar keep the flagstaff and beacon in line, paying attention to the signals of the semaphore, as a strong current at times sets across the entrance and on the bar, and the bar is liable to change. By night, a *fixed* white light is shown from the flagstaff, and a *red* light from the beacon; the white light should be seen 6 miles. By day, a red flag is hoisted on the beacon.

65.—NEW ZEALAND.—*North Island.*—*West Coast.*—*New Plymouth.*—A *fixed* white light is now exhibited from the flagstaff on Mount Elliott, 75 feet above the sea.

66.—ENGLAND.—*West Coast.*—*Menai Strait.*—*Beaumaris.*—The following alteration has been made in colour of the pier light at Beaumaris, Menai strait:—The light has been changed from a fixed red light to a fixed white light.

67.—GULF OF RIGA.—*Messaragotsem Point.*—With reference to Nautical Notice, 221 (November, 1875), on the intended exhibition of a light on Messaragotsem point, further notice has been given, that the light has been exhibited since the 28th September, 1875. The light is a *red* and *white* light of the fourth order, showing each colour alternately for *thirty seconds* (not for *one minute* as stated in the above-named notice); it is elevated 69 feet above the sea, and should be seen 13 miles. The tower is of iron, painted white. Position, lat. $57^{\circ} 21' 45''$ N., long. $28^{\circ} 8' 20''$ E.

68.—NORWAY.—*South Coast.*—*Langesund.*—*Langotangen Island.*—From the 1st May, 1876, the light now exhibited at Langötangen, will be

discontinued during some building alterations, and, on its re-exhibition, will be changed from a fixed white light to a *red* light. Due notice will be given of the re-exhibition of the light.

CHARTS, &c., Published by the Hydrographic Office, Admiralty, to the end of February, 1876, and sold by the Agent, J. D. Potter, 81, Poultry, and 11, King Street, Tower Hill.

No.	Scale.		s.	d.
111 a	m = 1·95	England, East Coast :—Farn Islands to Berwick, with Plan of Holy Island Harbour	2	0
1725	m = 0·4	Australia, West Coast :—Champion Bay	1	6
984	m =	A Plan of Jaluit or Bonham Island Harbour has been placed on the Chart.		
15	m = 3·5	South America, West Coast :—Molyneux Sound, Concepcion Channel	0	6
662	m = 0·17	Africa, East Coast :—Kilway Point to Zanzibar Channel	1	6
1244	m = 5·95	Fiji Islands :—Levuka Harbour ...	0	6
951	m = 0·48	Japan :—Kü Channel to Owasi Bay ...	2	0

COAST DEFENCE.—Lientenant Walker, R.A., has been detailed to make an inspection of the eastern coast, from the Wash to the Humber.

CONSULAR APPOINTMENTS.—The Queen has been pleased to approve of M. Paul Dominique Chevrey-Rameau as Consul at Glasgow, and of M. Emile Laurent-Cochelet as Consul at Liverpool, for the French Republic; of Mr. Handlanden H. Ferrer as Consul at Aden for his Majesty the King of Sweden and Norway; of Mr. James Heyn as Consul at Belfast for his Majesty the King of the Belgians; of Mr. Henry Driver as Consul at Auckland for the United States of America; of Mr. Auguste Parrot as Consul for Australia, to reside at Sydney; of Mr. Guillaume de Pury as Consul for Australia, to reside at Melbourne, for the Swiss Confederation; of General Lino Duarte Revel as Consul at Port of Spain, Trinidad, for the United States of Venezuela; of Mr. Thomas Law as Consul at Glasgow, and of Mr. J. H. Wolff as Consul at Southampton, for the Oriental Republic of the Uruguay; of Mr. Robert Schoell as Vice-Consul for the Port of London for the German Empire; of Don Thomas Elford as Vice-Consul at Swansea for the Republic of Peru.

OUR OFFICIAL LOG.

BOARD OF TRADE INQUIRIES.

Name of Vessel.	Port.	Nature of Casualty.	Judgment of Court.
<i>Adriatic</i>	Liverpool ...	Collision ...	Master's certificate returned.
<i>Amelia</i>	Glasgow ...	Accident ...	Ditto ditto
<i>Arbitrator</i>	Liverpool ...	Stranded ...	Ditto ditto
<i>Brother's Pride</i> ...	St. John, N.B.	Ditto ...	Ditto ditto
<i>Chesapeake</i> ...	London... ..	Ditto ...	Master not to blame. One man fined £1; remainder £5 each.
<i>Cydonia</i>	Sunderland ...	Ditto ...	Master's certificate suspended for 12 months.
<i>Eastella</i>	Hull	Ditto ...	Master not to blame.
<i>Fred Thompson</i> ...	Dundee ...	Ditto ...	Master's certificate suspended for 12 months.
<i>Lily of Devon</i> and <i>Clara</i>	Lowestoft Belgium	Collision ...	Casualty due to default of master of <i>Lily of Devon</i> , who was fined £5 towards costs of inquiry.
<i>Mignonette</i>	London... ..		
<i>Ocean Wave</i> ...	London... ..	Ditto ...	Ditto ditto
<i>Rubens</i> (s.) ...	Liverpool ...	Ditto ...	Master's certificate returned.
<i>Sparkenhoe</i> ...	Dublin	Abandoned ...	Master's certificate suspended for nine months; owner to pay £40 towards costs and expenses.
<i>Sophia Joakim</i> ...	London... ..	Stranded ...	Master's certificate returned.
<i>Vulture</i>	London... ..	Ditto ...	Ditto ditto

ROYAL NAVAL RESERVE.—Alexander MacKean, George Graves, and John Fleet Barlow have been appointed sub-lieutenants.

EXAMINATION FOR EXTRA AND HONORARY CERTIFICATES.—Each Local Marine Board have had sent to them by the Board of Trade a copy of the following draft circular of the proposed revised regulations applicable to extra master examinations :—With reference to Circular 595, it has been decided that the master's examination shall next comprise every subject in seamanship proper, including such as, coming within this definition, are at present included in the extra examination. The extra or honorary examination shall include not only the present extra subjects in navigation, but also those now embraced in the present extra seamanship examination, which will not, under the above regulation, be added to the ordinary examination. The extra or honorary examination will accordingly comprise all the subjects in navigation and science which are em-

braced in the examinations for second mate, only mate, first mate, master, and extra master, including also the "Syllabus of Examination in the Laws of the Deviation of the Compasses in an Iron Ship, and in the means of compensating or correcting it." (See Cir. 414.) The extra examination may take place at the time the applicant goes up for a master's certificate, or after he passes as master. If he passes the examination, an indorsement to that effect will be made by the Registrar-General of Seamen on his certificate. The extra certificate will not be issued until the applicant has subsequently served afloat for two years in command of a ship as master, and not then unless the applicant produces testimonials in all respects satisfactory. Under these regulations the seaman-ship examination of the ordinary master will, it is intended, include every branch of this subject with which the holder of a certificate should be acquainted to enable him to command a ship of any kind on a voyage to any parts of the world. The voluntary or "extra" examination will thus be confined to those subjects in navigation, science, and general knowledge which, however valuable to the possessor, not being regarded as absolutely necessary for the proper navigation of a vessel, are not included in the ordinary navigation examination, but may nevertheless fairly be expected of the aspirant to the honorary grade of extra master. The ability to go up for this "extra master's" certificate at the time for going up for ordinary master will no doubt operate to induce young officers to apply themselves to the study of navigation when they have, perhaps more than at any future period of their career, the opportunity for so doing; whilst, withholding the honorary certificate for two years will doubtless act as a stimulus to care and good behaviour in the interval.

INSTRUCTIONS TO SURVEYORS.—STOWAGE OF GUNPOWDER AND EXPLOSIVES.—The attention of the Board of Trade having recently been called to several cases of careless and improper stowage of gunpowder and other explosive materials on board ship without due precaution being taken for the prevention of explosion, and without the cases containing them being specially marked as required by statute, the surveyors and emigration officers are requested to report to this department any instances that come to their knowledge and require attention, in order that the Board may take such steps in the matter as they may think necessary.—Edward Stanhope, Secretary; Thomas Gray, Assistant-Secretary.—*Circular*, No. 48. February, 1876.

Appended are clauses extracted from the various statutes appertaining to this point :—

Merchant Shipping Act, 1873.—28. If any person sends or attempts to send by, or not being the master or owner of the vessel carries or attempts to carry in any vessel, British or foreign, any dangerous goods, that is to say, aquafortis, vitriol, naphtha, benzine, gunpowder, lucifer

matches, nitro-glycerine, petroleum, or any other goods of a dangerous nature, without distinctly marking their nature on the outside of the package containing the same, and giving written notice of the nature of such goods and of the name and address of the sender or carrier thereof to the master or owner of the vessel at or before the time of sending the same to be shipped or taking the same on board the vessel, he shall for every such offence incur a penalty not exceeding one hundred pounds : Provided that if such person show that he was merely an agent in the shipment of any such goods as aforesaid, and was not aware and did not suspect and had no reason to suspect that the goods shipped by him were of a dangerous nature, the penalty which he incurs shall not exceed ten pounds.

24. If any person knowingly sends or attempts to send by, or carries or attempts to carry in any vessel, British or foreign, any dangerous goods or goods of a dangerous nature, under a false description, or falsely describes the sender or carrier thereof, he shall incur a penalty not exceeding five hundred pounds.

Explosive Substances Act, 1875.—58. The Board of Trade may from time to time, by order, direct any person acting under the Board as an inspector or otherwise for the purposes of the Merchant Shipping Act, 1854, or the Acts amending the same, to inquire into the observance of this Act in any harbour or in the case of any ship, and generally to act in such harbour and with respect to ships as an inspector under this Act.

The Board of Trade may revoke any such order; and each such inspector shall, while such order is in force, have for that purpose the same powers and authorities as he has under the Acts in pursuance of which he was originally appointed inspector, and also the powers and authorities of a Government inspector under this Act.

INSTRUCTIONS TO SURVEYORS.—ADJUSTMENT OF STANDARD COMPASS.—Referring to paragraph 50 of the "Instructions to Surveyors of Ships," the surveyors are instructed that this paragraph should, for the future, be read as follows :—"Every foreign-going iron or composite built ship should have a standard compass fitted with the means of taking accurate bearings, and a table of errors for this compass should be furnished by a competent compass adjuster. Paragraph 49 of these instructions, enjoining proper compass adjustment, should be considered to apply to the standard compass in common with the others."—Edward Stanhope, Secretary ; Thomas Gray, Assistant-Secretary.—*Circular*, No. 46. February, 1876.

INSTRUCTIONS TO SURVEYORS.—SURVEY OF VESSELS FOR SEAWORTHINESS.—The surveyors are informed that the Board of Trade have had under consideration the advisability of continuing to allow vessels to be surveyed for seaworthiness, on the application of the owners, and that they

have determined to discontinue this practice entirely for the future. Surveyors are therefore informed that all applications made by owners to have their vessels surveyed for seaworthiness should be refused. This, however, will not interfere with surveys under Section 6 of the Merchant Shipping Act, 1878, with surveys required by this department in cases of change of name, nor with surveys under the 4th part of the Merchant Shipping Act, 1854, or the Passengers' Acts.—Edward Stanhope, Secretary; Thomas Gray, Assistant-Secretary.—*Circular*, No. 44. February, 1876.

INSTRUCTIONS TO SURVEYORS OF STEAMSHIPS.—SCREW TUNNELS.—The surveyors are informed that from and after the 1st January, 1877, no declaration for an iron sea-going passenger steamship, whether old or new, should be granted unless the vessel is fitted with a water-tight screw tunnel, and with a properly constructed water-tight door to such tunnel, in accordance with paragraph 27 of the "Instructions to Surveyors of Steamships."—Edward Stanhope, Secretary; Thomas Gray, Assistant-Secretary.—*Circular*, No. 43. January, 1876.

INSTRUCTIONS TO SURVEYORS OF STEAMSHIPS.—The attention of the Board of Trade has been called to the fact that the directions contained in paragraph 178 of the Instructions, "that surveyors should fill up and deliver, or send to the owners, master, or agent, a Certificate of Inspection (Stm. 21 b.)," are not always complied with. The Surveyors and Inspectors of Lights are therefore requested to note that this must invariably be done when a vessel's lights are inspected, and are found to be in accordance with the regulations.—Edward Stanhope, Secretary; Thomas Gray, Assistant Secretary.—*Circular*, No. 42. January, 1876.

NOTICE TO MARINERS.—EAST INDIAN ARCHIPELAGO, STRAITS OF MALACCA.—According to a notification, received through the Foreign Office by the Board of Trade, from the Ministry of Marine at the Hague, the second light at the above position was exhibited on the 1st of January, 1876, on the "Willemstoren," at Pulo Bras, at the north-west point of Sumatra, at the northern entrance of the Straits of Malacca. It is under the Great light to warn mariners of the North-West Island, and of the dangers of the north-west of Pulos Bras. It is a fixed red light, 26 feet from the foundation, 481 feet above high water, visible at a distance of eight sea miles, an illuminating an arc of 90° to the further sides of the "North-West Island," in N. 15° W. to S. 75° W. Light, fourth magnitude. Position, 5° 45' 0" N. latitude, 95° 4' 20" E. longitude—the longitude of Batavia being 106° 48' 75" E. (true bearings).

DEATH OF REAR-ADMIRAL A. B. BECHER.

At the ripe age of eighty years, our good old friend Rear-Admiral A. B. Becher has departed this life. Many of our readers will remember him as the editor of the *Nautical Magazine* prior to 1871, but perhaps few are aware that for forty years previously the deceased officer, while an assistant in the Hydrographic Office of the Admiralty, had been the guiding spirit of the Magazine, and had obtained for it a justly-deserved reputation. In the later years of his editorship, although the spirit was very willing the flesh became weak, and failing health compelled him to give up most reluctantly the labour of love which, as he stated in his farewell address, had been the mainspring of all his exertions in conducting the work. The labour of love referred to was by means of the *Nautical Magazine* to aid anything which might contribute to the seaman's benefit; and that the late Admiral's efforts were not fruitless may readily be seen by turning over the pages of the former series. Peace to his ashes! say we. He was a kind friend, a good man, and a hard-working officer, an ornament to his profession, and a valuable public servant. His life was worth living, and his last hours may perhaps have been made more peaceful by the inward satisfaction of knowing that he had done a good life's work.

THE
NAUTICAL MAGAZINE.

VOLUME XLV.—No. IV.

APRIL, 1876.

A MERCHANT SEAMAN'S PENSION FUND.

ANY one who proposes that merchant seamen shall have a pension, and be provided for in their old age, at once puts in a claim as a would be benefactor to the seaman in particular, and to the country in general; but why a person who makes such a proposition is thereupon at once regarded as being superior to the generality of his fellow men in far-sightedness, nobility of soul, and largeness of heart is a problem for which we have never been able to find a solution. Indeed we venture to ask whether any one who is capable of thinking out for himself the simplest of problems in political economy, has yet been able to discover why there should be a pension fund for sailors who man merchant ships, any more than for tailors who man merchant shops?

It is generally assumed, but why, we have never been able to discover, that Mercantile Jack, the sailor, possesses in his own proper person by virtue of his method of earning his daily bread, some claim for State aid, which Mercantile Bill, the tailor, or miner, in his own proper person, does not, and never can possess.

It is a pure fallacy. A mercantile sailor has by virtue of his occupation on board a trading merchant ship, no more claim on the State, either for training him when young to be a merchant sailor, or pensioning him when an old merchant sailor, than a mercantile tailor.

Every British citizen feels that he is free to earn his living in the occupation he chooses for himself, and to spend his earnings as he pleases. A citizen who selects his own occupation, retains his liberty

to follow it, and spends his own money, can have no special claim on third parties to support him when he can no longer carry on his trade. The poor laws apply to him in common with every other person who has spent all his earnings and can make no more.

Every one will admit that this is quite true in the case of a workman who earns his living by working in shops ashore; and yet most illogically many persons are found who will deem it to be quite untrue in the case of a workman who chooses to earn his living by working in ships afloat.

We are fully aware that we might earn for our pages great popularity just now by advocating the training of boys to serve on board merchant ships, the passing of an apprenticeship law, and the formation of a pension fund for worn-out merchant sailors; but as we are disciples of common sense, we leave popularity to those who prefer it. Our views respecting State aid in training boys are given in our last number. Our views as to a merchant seaman's pension fund will be found below.

Before we proceed to discuss the latter question we may, however, by way of remark in passing, observe that no pension fund for merchant sailors could be of use unless contributions to it out of men's wages were compulsorily taken from them by law. Now, compulsion in these days, even were it only to assume the mild shape of appropriating a portion of every sailor's wages monthly, is not likely to find favour with many people. They would be apprehensive lest it should degenerate into a Government habit and become general. Again, the results of the compulsory Greenwich sixpence did not prove to be satisfactory to anybody. Nor was the old merchant seamen's fund at best anything but a bankrupt concern. Under all circumstances, we can hold out no hopes of the creation of a fund composed of compulsory abstractions of wages. To call a compulsory abstraction a "contribution" is one of the amusing paradoxes that show how utterly the subject is misunderstood by those who handle it. To pass a law that every man who chooses to earn his living by working on board a merchant ship shall, whether he likes it or not, have a certain percentage of his earnings taken away from him by our paternal Government, in order to form a pension fund, would be to interfere with the sailor's liberty in a way that dare not be attempted in the case of any other class of workman. At all events, we would prefer to see it tried on the classes who inhabit towns such as Derby, Birmingham, Sheffield, and Newcastle, before it is tried on sailors.

To start a so-called "fund," to be composed of sailors' voluntary subscriptions, and to promise sailors a pension out of it, would be to promise an absurdity so palpable that no sane man would entertain it. Seeing that compulsory abstraction of wages is impossible, and that a fund based on voluntary subscriptions by seamen is moonshine, the

only remains for consideration the question whether the State is to provide pensions for worn-out merchant sailors by levying a tax on all other members of the community. And here we are met with the startling question, Why should Mercantile Tailor Bill be taxed to provide a pension for Mercantile Sailor Jack? Or to put it more accurately, why should the State pension one class of its labouring population at the cost of the whole population? To answer this question we must consider what are the grounds on which payments by the State, whether in the shape of salaries or pensions, are made to individuals.

First.—There is the Army. Men enter the Army for a fixed period; they become exclusively servants of the State, and at low wages. They are ready to be sent to any part of the world in the service of the State, to run the risk of being killed or maimed in the service of the State at any moment the State requires their services. Soldiers learn nothing useful to themselves as workmen. They are after a time practically useless as handicraftsmen. They give up their life and energy to the State, and the pension they receive after a certain period is simply a part of their State wages.

Secondly.—There is the Navy. What is true of men in the Army is equally true of the men in the Navy. They receive wages below the current rates outside those services, and they receive State pensions simply as a part of the wages due to the nature of the special conditions of their service to the State as their employer.

Thirdly.—There is the Civil Service. In the Civil Service, as in the Army and Navy, men are the servants of the State, and have no chance of competing with the outer world in the hundreds of ways of earning money. They give up their time to the service for pay lower than the pay of men in their position outside the service, and a part of their pay is deferred in the shape of a pension which they may or they may not live to enjoy. The widow or orphan of the Civil servant has no pension.

Fourthly.—There is the outside individual in the mass of our population. There are certain men (amongst them sailors) who, whatever be their callings, render some service to the State. They may write a book, take out a patent, win a battle, work for their party, discover a remedy for disease, paint a picture, receive a member of the Royal Family on a festive occasion, or do something that the Government of the day may choose to regard as a service to the State. These people or their heirs receive a pension. In some cases the pension is paid at so much a year in cash, whilst in other cases it is commuted for a knighthood, baronetcy, bishopric, or peerage, or in some other way well known amongst us.

In all these cases the guiding principle is this: if a man elect to become a permanent servant of the State, the State will pay him less wages than his class will earn out of doors, but will give him in compen-

sation for his life-long work and his small pay a pension in old age ; or if a man becomes a marked servant of the State on a particular occasion, rendering some distinguished service not rendered by the ordinary members of his profession, or perform some *quasi* distinguished service, such as is usual on the part of mayors, provosts, and the like, the State recognises it.

Suppose, however, that a man elect to take up the trade of a puddler, and earn puddler's wages and spend them, and supposing that during the whole of his puddler's life he renders no more service to the State than any other member of the whole body of puddlers ; in what will consist his claim to receive a pension out of the pockets of all other tradesmen and workmen when he can no longer puddle ? And so suppose a man elect to go to sea and become instead of a puddler a stoker, that he earn stoker's wages during the whole of his stoker's life, he renders no more service to the State than any other member of the whole body of puddlers and stokers ; in what, then, consists his claim to receive a pension out of the pockets of all other classes when he can no longer stoke ?

Again, suppose a man elect to go to sea and become a merchant seaman and earn merchant seaman's wages during the whole of his seaman's life, he renders no more service to the State than any other member of the whole body of merchant seamen, of puddlers, or of stokers. In what, then, consists his claim to receive a pension out of the pockets of all other classes when he can no longer go to sea ?

The general body of British seamen as labourers serving on board merchant ships have no more claim to consideration at the hands of the State than have the general bodies of British puddlers, miners, tailors, bakers, or agricultural labourers. Each body, it is true, renders some service to the State, but in doing so, each individual of the body renders that service in the ordinary course of his calling in common with every one of his productive fellow labourers. He is of use to the State collectively, simply because he is of use to himself individually, and in this respect every producer and labourer is on precisely the same footing. So far as the merits of the case are concerned we might end this article at the above paragraph, but were we to do so we should probably be accused of omitting to mention two institutions which materially affect the sailor in regard to his personal liabilities to serve the State ; we refer to the press gang, and to the Royal Naval Reserve. These are however, personal liabilities outside his occupation on board merchant ships and inside the occupation of a State servant. As regards the press gang, impressment can only take place when the State requires the services of its citizens, and when the citizen's avocation in his own calling is for the time gone. The sailor, however, is only liable to serv

the State in common with other citizens in such a case for the last defence of the country from the invader. Be that as it may, experience has shown that the employment of press gangs in the past required the service of more men than were ever pressed by them. For this reason, and for the reason that popular sympathy would be against the use of the press gang in future, we think it may be dismissed as a useless and irrelevant bugbear. Moreover it is rendered unnecessary by the Royal Naval Reserve. As there are however to be found amongst us many worthy men on whom the above argument as to the fallacy of allowing the "press gang" to influence the question of a pension for merchant sailors will be useless, we would insert the following further hint on the subject.

There is, our opponents will say, a possibility that merchant seamen may be impressed. True, there is the possibility ; but we would venture to point out that the possibility is so remote as not even to amount to a probability. It is, let us say, in round numbers sixty years since a single British merchant sailor was impressed. Is the fact that impressment was possible sixty years ago to set aside the fact that it has not been resorted to since then ? And is the remote possibility of the future, and not the actual fact, to be taken as sufficient to entitle every Mercantile Jack afloat during the last sixty years to receive some special consideration in the way of payment or pension to himself, and widow and children, out of the State funds ? If the press-gang (that antiquated bugbear of the past) is to have any weight in our present and future deliberations, it ought to have weight in the direction of providing ample compensation to such merchant seamen as may actually be hereafter pressed ; but it certainly ought not to be entertained for a moment as a reason for providing pensions for seamen who never have been, and never will be, pressed. We commend this view to the consideration of those gentlemen, not being shipowners, who wish to frame legislation for merchant sailors.

As regards the Royal Naval Reserve, it is an institution created by the dictates of sound sense, and continued in the interests of true national policy. So far, however, from the existence of the Royal Naval Reserve weakening our argument that a pension formed for the whole body of merchant sailors is unnecessary, we think that it establishes our point beyond further question.

Each member of the Royal Naval Reserve gives up thirty-two days of his time in each year to learn gun drill. In learning that he learns something absolutely useless to himself as a mercantile sailor, but something that is of use to him as a retained servant of the State, and to the State only. He also undertakes to go afloat in naval emergencies. There is on his part a distinct giving up to the State of a twelfth of his

productive life, and a distinct bond that he will man Her Majesty's ships when his services are called for by Royal proclamation. The State, on her part, pays him a retaining fee of so much or so little a year, provides him with food, lodging, and drill pay, whilst undergoing State instruction, and promises him, as part of his State pay, a pension when he is worn out. This brings us to the true merchant seamen's pension fund.

The State does not wish to provide pensions for the element of indescribable riff-raff, wasters, gaol-birds, and gutter-wash so often found on board merchant ships; nor does she want to provide pensions for the 10 per cent. of foreigners in the British Mercantile Marine. If she does not wish to do this, it would be nothing short of robbery to appropriate a certain percentage of their wages as a contribution to a pension fund. What the State wishes to do, guided by the dictates of sound common sense, is to provide pensions for just so much and no more of that respectable, honest, trustworthy, national, patriotic, British element in the Mercantile Marine that will train itself for State service, and thereby render itself of use in case of emergency to the State. This is completely and finally done in the Royal Naval Reserve by payment of retainers and pensions. Let us hope that we may hear no more about a pension fund for merchant sailors as a body; but let us extend our Royal Naval Reserve, thereby adding to the strength and prosperity of the Empire by providing training and pensions for the able and the worthy amongst the class of Mercantile Sailor Jack, instead of wasting money by bestowing indiscriminately pensions on every person who chooses to follow the sea as a service, but who, in doing so, works as other labourers for himself, without having the patriotism to join our second line of defence, the Royal Naval Reserve.

We trust that we have demolished the arguments in favour of a general merchant seamen's pension fund, and in our next number we hope to be able to discuss the fallacy of expecting any great interchange of service between officers and men of the Royal Navy and Mercantile Marine, unless indeed very abnormal circumstances may arise that do not now exist.

THE SHIPPING OF CANADA.

By WILLIAM SMITH, ESQ., DEPUTY MINISTER OF MARINE OF CANADA.

THE shipping of Canada is one of its most important interests, and has tended in a great measure to develop the resources of the Dominion, more particularly of that portion of it known as the Maritime Provinces.

Previous to the establishment of British Lloyd's surveyors in North America, about twenty-five years ago, many of the ships built in the Maritime Provinces were intended for sale in England, and were much inferior in quality to those built at the present time; and as there was no opportunity of having them inspected or classed in this country, the inspection and classification had to be gone through on their arrival in England, at a very heavy expense, and a class was given for a less number of years than they would have been entitled to if the inspection had been made while building. The establishment of surveyors of British Lloyd's in Quebec, New Brunswick, and Prince Edward Island, however, did much to remedy all these difficulties, and to place Canadian shipping on a better footing in the English market, when offered either for sale or charter.

The shipowning interests of British North America were therefore much indebted at that time to British Lloyd's for the establishment of their officers in the Dominion, and for the improvement which it brought about in the quality of their ships; but after a few years Canadian shipbuilders began to complain that British Lloyd's did not give as high a class to their vessels as they considered them entitled to, and efforts were made from time to time to obtain some consideration for the improvements which the inspection while building had brought about, and to some extent their efforts were successful.

Some years after the establishment of British Lloyd's surveyors in North America, the institution of French *Bureau Veritas* established surveyors in New Brunswick and Nova Scotia, and by a more favourable consideration of the merits of Canadian woods, used in the construction of ships, and, by extending to vessels a higher class than could be obtained at British Lloyd's, this institution has succeeded in obtaining the classification of a very large proportion of the ships built in these two Provinces; and many of the shipbuilders and shipowners there express themselves highly pleased with their inspection, which, they assert, is very thorough, and also with the classification which their vessels receive in its register. In Prince Edward Island, however, the shipbuilders and shipowners still prefer British Lloyd's classification, and nearly all the vessels built in that island are classed in that register.

An office of American Lloyd's has also been established at St. John,

New Brunswick, for a number of years, and the classification of this institution is accepted in many foreign ports, more particularly in the United States and West Indies.

As Canada has very extensive coasts, both on the sea and the great lakes, the vessels built in different parts of the Dominion vary very much both in quality and value. In the inland waters the vessels are built for the lake trade, and very few of them ever go into salt water, although vessels have sometimes loaded at inland ports on the lakes, and carried cargoes direct to England; but such voyages have not been found successful, and will not likely be tried again for some time to come. Although there are some barges and schooners trading on the great lakes as large as 500 or 600 tons, the bulk of them are composed of schooners under 300 tons, and nearly every Canadian vessel engaged in this trade is classed by the Lake Underwriters' Association of Canada, but there are no officers of either British Lloyd's or French Veritas stationed at any of the inland ports.

The shipping of Canada may be divided into the following classes, viz. :—

- 1.—Vessels engaged in the foreign sea-going trade.
- 2.—Vessels engaged in the coasting, sea-going, and fishing trade.
- 3.—Vessels engaged on the rivers and great lakes.
- 4.—Steamers.

(1.) The first-mentioned vessels embrace the most valuable portion of the shipping of the Dominion; and a large portion of them have a high character either in British Lloyd's or French Veritas. They are chiefly engaged in the foreign carrying trade of the United Kingdom, and other portions of Europe, South America, Australia, and the East Indies, and are keen competitors in these trades with vessels belonging to foreigners and owners resident in the United Kingdom. They have been nearly all built for their owners, and not for sale; and the earnings of this large fleet of vessels abroad, during favourable years, have been a great source of wealth, not only to their owners, but to the country generally, and have been, to a great extent, invested from time to time in new tonnage.

When Canadian vessels, engaged in trades which require a good class, lose their character, from age or otherwise, it has hitherto been customary for the owners of many of them to dispose of them in the United Kingdom for what they would fetch, rather than go to the expense of repairing and re-classing them. The character of the Canadian shipping engaged in the European carrying trade has therefore been well kept up, and the results to the owners have generally been very satisfactory.

(2.) The vessels engaged in the coasting and fishing trades on the sea-coast are, to a great extent, owned by persons who have an interest in

them or own them, are but rarely classed in any institution, and are chiefly employed in carrying cargoes of wood, stone, coal, agricultural produce, fish, &c., between different ports in the Dominion, and between the Dominion and the United States.

(3.) The number of sailing craft engaged in the inland trade of Canada is very large, and is principally employed in carrying grain, flour, wood, agricultural produce, stone, coal, &c. There is a large number of decked barges, but without rigging, included in this class, which are towed from place to place by tug steamers. None of these vessels are classed, either in British or French Lloyd's, but nearly all are classed by the Canadian Lake Underwriters' Association.

(4.) The total number of steamers belonging to Canada, inspected by the officers of the Canadian Government during 1875, was 661, having a gross tonnage of 118,115 tons, and 69,771 tons register. Of this number 277 were paddle-wheel steamers, 984 screw boats, 272 passenger steamers, 57 freight steamers, and 332 tugs. These vessels are to be found during the season of navigation all along the coasts of Canada, but very few have been classed either at British or French Lloyd's. Many of the inland steamers, however, are classed by the Lake Underwriters' Association of Canada.

The total number of vessels of all kinds remaining on the Registry Books of Canada on the 31st December, 1875, was 6,952, measuring 1,205,565 tons, and assuming the average value, including steamers, to be \$30 per ton, it would give a total value of \$36,166,950, equivalent to about £7,238,390 sterling.

The number of new vessels built and registered in Canada during last year was 480, measuring 151,012 tons, and assuming \$45 a ton to be a very moderate average value for such vessels, including steamers, it would give the total value of the new vessels registered last year in Canada at \$6,795,540, or about £1,359,108 sterling.

The *Repertoire General* for 1875 and 1876, published by *Bureau Veritas*, gives the sea-going tonnage, and tonnage of steamers over 100 tons, of each flag, as follows, viz.:—British, including Colonial, 7,631,598 tons; American, 2,880,973 tons; Norwegian, 1,395,261 tons; Italian, 1,284,012 tons; German, 1,052,201 tons. It will be seen that the tonnage of Canada, including her inland tonnage—viz., 1,205,565—is much above that of Germany, which does not include inland tonnage or small steamers; and it may fairly be assumed, therefore, that Canada stands in the position of the fifth largest ship-owning country in the world, and will, no doubt, ere long have on her register books the third largest Mercantile Marine in the world.

Under a Canadian Act of Parliament, approved by the British Government, the Governor in Council has power to organize a Canadian Register

for the classification of vessels ; but up to the present time no action has been taken in the matter, as there is much difference of opinion among shipowners as to whether it would be advisable to organize such a system in connection with the Government.

The number of full-rigged ships on the register books of Canada on the 31st December, 1875, was 245, measuring 284,824 tons, all engaged more or less in the foreign carrying trade. The majority of these vessels are classed in French Bureau Veritas, and a small portion in British Lloyd's.

The number of barges on the Canadian register books at the same period, engaged in foreign sea-going carrying trade, was 488, measuring 325,897 tons, and of barkentines 86, measuring 15,405 tons, a large portion of which is classed in Bureau Veritas.

The number of brigs was 61, measuring 15,836 tons, and brigantines 522, measuring 114,821 tons, all engaged in the foreign carrying trade, and occasionally in the carrying trade between Canada and the United States and the West Indies and the United States. A large portion of them are classed in Bureau Veritas ; very few being classed in British Lloyd's, although a number of them are classed in the American Lloyd's.

The number of ships, barques, barkentines, brigs, and brigantines on the register books of the maritime Provinces of Canada on the 31st December, 1875, and which composed the Canadian fleet of merchant shipping engaged in the foreign carrying trade, was 1,352, measuring 756,283 tons, nearly all of which were classed either in British Lloyd's, Bureau Veritas, or American Lloyd's.

In addition to this fleet of vessels engaged in the foreign carrying trade, there were 3,419 schooners, measuring 186,558 tons, on the register books of the Provinces of Quebec, New Brunswick, Nova Scotia, and Prince Edward Island, engaged principally in the coasting and fishing trade of these Provinces, and in the carrying trade between the maritime Provinces and the United States, while, in the winter months, some of the largest-sized ones find employment between Canada and the West Indies, and between the West Indies and the United States. Very few of this large fleet of schooners are classed in any institution, as it has not hitherto been found necessary for sea-going coasting vessels to be classed. The schooners and barques engaged in the coasting trade on the inland waters, between ports in Canada and between Canada and the United States, are not included in these figures, as they rarely come into salt water, although they are nearly all good, strong vessels, and classed by the Canadian Lake Underwriters' Association. The heavy gales which frequently pass over the great lakes in the fall of the year render the navigation on these waters nearly as dangerous as on the Atlantic Ocean ;

and the vessels trading on our inland seas require to be strong and substantially built, in order to carry grain cargoes without damaging them.

There has been much uneasiness for some time past among the owners of Canadian and foreign-going ships on account of Imperial legislation which affects their vessels while in ports in the United Kingdom, equally as much as it affects ships belonging to owners in England, and it will be seen by the figures already given that their interest in such legislation must be very great, with 756,288 tons of shipping engaged in the foreign carrying trade.

Many memorials, petitions, and communications, have reached the Government of Canada, from time to time, from Canadian shipowners, urging the Government to take some steps to relieve their vessels from the effects of Imperial legislation, so as to place them, while in ports in the United Kingdom, on as favourable a footing as foreign vessels, as they are afraid that if such relief is not afforded them, a large portion of the carrying trade, which they now enjoy, will pass into the hands of foreigners, foreign vessels not being subjected to the same restrictions and detentions while in the ports in the United Kingdom as Canadian vessels. During the last two or three years the Canadian Government have several times brought before the notice of the Imperial authorities the complaints referred to, and on a recent occasion, in reply to a despatch from the Right Hon. the Earl of Carnarvon, inquiring as to the operation of the Unseaworthy Ships' Act of 1875, with reference to Canadian shipping, they forwarded a despatch, on the recommendation of the Minister of Marine, stating their views on the subject, and pointing out the objectionable features of Imperial legislation in regard to Canadian tonnage engaged in the foreign carrying trade. In that despatch they showed, with reference to grain-laden vessels, that the Section in the Unseaworthy Ships' Act, of 1875, was unnecessary in Canada, as the Canadian law was much more thorough and complete in its details than the section alluded to, and that no vessel with grain on board, bound for a European port, could clear until the port warden had given his certificate that it was properly stowed, and that the vessel was seaworthy. The Canadian law has already been the means of saving life and property, as no accident to such vessels has occurred since 1873, when it came into operation, on account of improper stowage or overloading of grain-laden vessels, whereas, in 1872, six steamships laden with grain were lost.

The Canadian deck-load law, restricting deck-loads in winter, has also been found to work well, and has tended to safety of life and property. Only light wood, not exceeding three feet in height, is allowed to be carried on the decks of vessels going to Europe during the winter months.

The Canadian Government also object to the power given by the Unseaworthy Ships' Act, to one-fourth of the crew to detain a ship on the ground of alleged unseaworthiness, as sailors are frequently not in a fit state to form an opinion on such a subject when they first join a ship. They also think the power of a Board of Trade surveyor to direct the unloading of a ship on account of alleged unseaworthiness of the hull, should be modified, and that a certificate of classification by British Lloyd's, Liverpool Underwriters' Registry, Bureau Veritas, or the Canadian Government, wherever a system of classification shall be established, shall be received as *prima facie* evidence of the seaworthiness of the ship. They are also of opinion that no Imperial legislation should take place affecting the question of seaworthiness or loading of Canadian vessels in Canadian waters, as the Canadian Legislature is the proper authority to deal with such questions, and when it becomes necessary to legislate for the safety of Canadian vessels in Canadian waters, the Canadian Parliament will, no doubt, be quite ready to do so, as it has already done in the past. They also think that in any future Imperial legislation it should extend to foreign ships, so as to subject them to the same restrictions and penalties while in ports in the United Kingdom as British ships, so as to do away with the discriminations in favour of foreign ships which at present practically exist, and which, if continued, may have an injurious effect on the interests of Canadian shipowners while competing with foreigners for the carrying trade.

At present a foreign ship is not liable to detention by Board of Trade surveyors, while Canadian ships, which are British ships, are liable to detention before sailing, and may be required to unload a portion of their cargo if alleged to be overloaded. They are also of opinion that British ships, while carrying cargoes from foreign ports to the United Kingdom, or from one foreign port to another, should not be subject, by Imperial legislation, to restrictions or penalties, as at present, as it will certainly give an undue advantage to foreign ships over British ships, and may tend to deprive Canadian ships of a large portion of the foreign carrying trade which they now enjoy ; but the Canadian Government suggest, as a subject well worthy the consideration of the British Government, whether it will not be advisable to enter into negotiations with foreign Governments, with the view of inducing them to adopt legislation similar to that which has been adopted by the Imperial Parliament, for the safety and protection of life and property at sea, and they express their willingness to send a delegate to London for the purpose of conferring with the Imperial authorities while the proposed Bill of 1876 is under discussion in Parliament, if the British Government think it desirable to do so.

The Canadian Government also ask the British Government not to sanction any law which may be proposed in Parliament for the purpose

of prohibiting the carrying of deck-loads between Canada and the United Kingdom, as the Canadian law now in force is all that is really necessary.

At a meeting of the Board of Trade of Saint John, New Brunswick, composed largely of shipowners, held at that place on the 18th February, 1876, a number of resolutions were passed, agreeing with the views of the Canadian Government on this subject, and requesting that the Honourable A. J. Smith, Minister of Marine, might be named a delegate to proceed to England, for the purpose of conferring with the authorities there, and protecting the interests of Canadian shipowners; and as he is an able marine lawyer, and owns a large amount of shipping, no better representative could be found, if his public duties here—in the Government and House of Commons which is now in session—will admit of his going.

Ottawa, Canada, 25th February, 1876.

CONSULAR JURISDICTION AS REGARDS THE MERCANTILE MARINE.

THE Jurisdiction of Consuls forms so important an element in the welfare of our Mercantile Marine, that some observations upon it may prove useful and interesting.

Consuls receive their authority, 1st, from the Royal Commission; 2ndly, directly from the Foreign Office; and 3rdly, indirectly, through that department from the Board of Trade.

The "General Instructions" issued by the Foreign Office are based upon the Act of Parliament, 6 Geo. IV., cap. 87, commonly known as the Consular Act, upon the Queen's Orders in Council, and circulars transmitted from time to time by the Secretary of State, whilst the "Instructions to Consuls" from the Board of Trade, are founded upon the Merchant Shipping Act, 1854 (17 and 18 Vict., cap. 104), supplemented or amended by periodical circulars.

Neither the Royal Commission nor the "General Instructions" from the Foreign Office, confer either magisterial or judicial functions upon Consuls: the former enacts, that, for the encouragement of Her Majesty's subjects trading abroad, Her Majesty appoints a Consul to take care of the affairs of her subjects, and to assist them in all their lawful and mercantile concerns, giving and granting him full power and authority, by all lawful means, to aid and protect British merchants and others who may trade with, visit or reside in this district. And all Her

Majesty's subjects are strictly enjoined and required to take notice of Her Majesty's Commission, and to yield obedience thereto.

The "General Instructions" from the Foreign Office, relate to the various duties expected to be performed by Her Majesty's Consuls, such as the protection and promotion of the lawful trade of Great Britain, the discouragement and even the denunciation of illicit commerce by British subjects, the arrangement of their differences, and the promotion of peace, harmony, and goodwill amongst them, the conciliation of all disputes which may arise betwixt them and the natives of the country in which they reside; the support and defence of the international and treaty rights of Great Britain, whenever attempts are made to infringe them, the strictest vigilance in all slave trade transactions, and the validity of claims for British nationality; the collection of information upon all subjects interesting to the Government likely to prove of advantage to the nation, and the transmission of periodical reports upon them, especially upon commerce, trade, navigation, shipping, agriculture, mines, railroads, telegraphs, and other public works, population, industries, wages, markets, emigration, foreign loans, epidemics, &c.

The care of British chapels, hospitals, and burial grounds is also amongst the Consul's duties. He is authorised to solemnize marriages, is a registrar of births, marriages, and deaths, is a Government accountant, a public notary, and administers oaths; but no magisterial functions are conferred upon him further than those of a friendly arbitrator.

The "Instructions to Consuls" from the Board of Trade impose equally varied duties upon Consuls, with this distinction, that they almost all bear a magisterial or judicial character. They commence by directing attention to the laws relating to British shipping, to their ownership, registry, flag, their national character, and to mortgages, sales, and purchases effected in foreign ports. They then proceed to point out the duties of Consuls regarding their general cognizance of the masters, officers, and seamen of British ships, to the steps to be taken upon their arrival, the hearing of complaints, the infliction of fines and punishment; of discipline and desertion, mutiny and crimes committed on the high seas, of agreements with seamen, their shipment and discharge, of action when they are left abroad or forced on shore, or sick in hospital; of the relief to be afforded to distressed seamen, and of the duties in sending them home, of the wages and effects of deceased seamen, of the interference of foreign courts of justice, of wrecks and salvage, of passenger ships, of the misconduct of masters, and of naval courts.

These are the chief regular duties required to be performed by British Consuls, in addition to post office and telegraph agencies which many of the principal Consuls hold.

Although it is not proposed in this paper to enter into details of

consular duties further than they relate to their criminal jurisdiction over the Mercantile Marine, it has been necessary to recite their various subjects and extent, as the mere question of time, or the possibility of one man efficiently performing such manifold functions in any given space of time, however zealous or talented he might be, will have to be seriously considered. This and the difficulties arising from territorial rights will be found to be the great stumbling blocks to the administration of the law by them.

It seems that in recent legislation too little regard has been paid to these points. The Merchant Shipping Act contains enactments for the regulation of the Mercantile Marine of inestimable value to this country, and which may be regarded as models for the adoption of others so long as their administration remains within the country; but the moment an attempt is made to transport and to administer them abroad they encounter obstructions.

To take the territorial question first, as the most important—hitherto the most civilised nations have denied all judicial power to foreign Consuls (excepting those in the Levant and China), and notably Great Britain. But there exists a remarkable exemption to this rule in the United States, which, in its treaty with Sweden of the 24th July, 1818, stipulated that the Consuls of either nation in the territory of the other “shall as such have the right of acting as judges or arbiters in all cases of differences which may arise between the captains and crews of the vessels of the nation whose affairs are intrusted to their care. The respective Governments shall have no right to interfere in this sort of affairs, except in the case of the conduct of the crews disturbing public order and tranquility in the country in which the vessel may happen to be, or in which the Consul of the place may be obliged to call for the intervention and support of the executive power, in order to cause his decision to be respected, it being, however, well understood that this sort of judgment or arbitration cannot deprive the contending parties of their rights of appealing on their return to the judicial authorities of their country.”

It is certainly surprising that a people so jealous of foreign interference as that of the United States should have been parties to such a treaty. But if foreign Consuls are to exercise powers not conferred upon them either by international law or the municipal law of the country in which they reside, it can only be by convention or treaty. Yet so little regard has been paid to this fact that Consuls have universally for years imprisoned, and still continue to try, convict, and imprison seamen in foreign countries, without either international, municipal, or treaty authority, or indeed as regards Great Britain, without the sanction of her own laws. So much and so long has this been practised that

nine-tenths of our Consuls, and every master and seaman in the Mercantile Marine, believe that they possess the power which they so liberally exercise; and yet nothing seems clearer than that any man so imprisoned might bring his action against any Consul in England, who had so imprisoned him, and would obtain a verdict in a British court of law. To one acquainted with the practice the theory is startling; and men in the Consular and Diplomatic service have expressed the greatest surprise and doubt of its correctness, and considered it incredible that an illegal act could be so universally committed; and masters of ships have declared that if such were the fact there would be an end of discipline on board British ships.

It is not likely that this latter effect would be the consequence of Consuls ceasing to imprison seamen. There is one Consul at least who rarely resorts to the practice; and the British ships at his port are quite as well, if not better, conducted than at ports where half the crews are incarcerated. Some Consuls who distrust the security of their position suppose that they avoid the consequences of their acts by obtaining the imprisonment of the men through the action of the local authorities; but it is considered that this would not save them, and that a court of law would regard the procuring the imprisonment of a man in the same light as direct imprisonment.

If it be deemed necessary that Consuls should continue this practice, an Act of Parliament would be required to legalize it here, and conventions with foreign States to render it legal abroad. It would probably be better that Consuls should be prohibited from imprisoning for minor offences, and graver ones should be tried by Naval Courts; for the apprehension of deserters, and sending them on board their ships, they could always obtain the aid of the local authorities.

But if the unobtrusive procedure of the Consular Police Court, which is generally acquiesced in abroad, requires legal authority and treaty recognition, how much more will that of the Naval Court with its five judges and its extensive and growing powers? Formerly, to avoid national susceptibilities, some States, Portugal and Brazil for instance, entered into treaties with us, under the conditions of which they formed a special tribunal for hearing the complaints of our masters and seamen, and for generally dealing with all matters relating to our Mercantile Marine, over which was placed a judge called a "Judge Conservator," a native of the country, nominated and paid by the British Government, and approved by the Portuguese or Brazilian. At the expiration of the treaty it was not renewed, and its jurisdiction fell, in a loose and undefined way, into the Consul's hands, the defect of which was that it was supported by no legal authority, and was rather acquiesced in than actually sanctioned.

Although the Consular Courts worked tolerably well, they were in many respects objectionable; law was administered, when no law existed, by one utterly ignorant of law; for at that period Consuls underwent no examination upon their appointment, and even now, when they have to pass a Civil Service examination, and are called upon to perform magisterial duties daily, and judicial duties periodically, no inquiry into their capacity for either forms part of their examination; hence their decisions are arbitrary, sometimes unjust, and frequently ridiculous.

It was therefore very properly decided to withdraw all serious cases from their unaided judgment, and naval courts were instituted upon principles and with attributes admirably adapted to carry out their objects; the drawbacks are that, although their application is of course intended to be general, the very nature of their constitution prevents their being anything else but limited, and practically with the exception of a few ports, the old autocratic consular jurisdiction will remain, and even at these ports where the Court could be formed, it will be seen that with his multifarious duties the Consul could not attend to them.

The Court is to be called by a Consul or a naval officer, and is to be composed of five, or not less than three members, of whom one must be a Consul, one a naval officer, and one the master of a British merchant vessel, and the rest either naval officers, merchant captains, or merchants. Now it is quite evident that excepting at the head-quarters of Naval Stations abroad, the naval element is not to be calculated upon, the formation of the Court elsewhere depending upon the fortuitous circumstance of a vessel of war calling in, and it would be extremely improbable that that event should occur exactly at the moment when it was required. Practically, therefore, a Naval Court can only be held at very few foreign ports.

The cases in which a Naval Court may be called, are thus defined in the Act of Parliament:—

“1. Whenever a complaint which appears to such officer (the Consul or naval officer) to require immediate investigation is made to him by the master of any British ship, or by any certificated mate, or by one or more of the seamen belonging to such ship.

“2. Whenever the interest of the owner of any British ship appears to such officer to require it.

“3. Whenever any British ship is wrecked, or abandoned, or otherwise lost, at, or near the place where such officer may be, or whenever the crew or part of the crew of any British ship, which has been wrecked, abandoned, or lost abroad arrives at such place.”

Now, as regards the first clause, it would appear that a case merely requiring “immediate investigation” without further definition would be much more expeditiously enquired into by the Consul himself than by

the sometimes impracticable, and always dilatory expedient of calling a Naval Court.

As the second clause leaves the judgment of whether the interests of the owners require a Naval Court to the discretion of the Consul or naval officer, it is so far satisfactory, but as the discretion is divided, suppose the Consul and the naval officer differ as to the necessity? Will the Consul be forced to suspend his other duties, to give up his consulate and the service of his clerks to enter upon (in his opinion) a tedious and useless enquiry? As complaints are always made to the Consul and not to the naval officer, the discretion should be exclusively with him.

The third clause relating to wrecks and casualties is unobjectionable at places where a Naval Court can be formed.

What is required is a clear statement of such cases as are to be tried by a Naval Court. They should be few and unmistakable, such as murder, arson, manslaughter, mutiny of a crew, or a great proportion of a crew, barratry; and if from the circumstances of the port it is not possible to form a Naval Court, the charge should be inquired into by the Consul himself as a police magistrate, and should he consider the accused guilty, the Consul should have the power to send him home with the necessary witnesses for trial. It is true that a Consul can do so now, but the evidence taken before him is not received as such in a court of law, which it should be, seeing how limited is the sphere in which Naval Courts can be held.

But such cases as insubordination, drunkenness, insolence, absence without leave, desertion, &c., should be left to the Consul's summary jurisdiction, the punishment being always by fine or imprisonment on board to avoid all international questions and the filthy foreign prisons into which seamen are thrust, and where hundreds in the tropics have fallen victims to yellow fever.

"Mutiny" and "danger to life" are vague charges; almost every captain who complains of an insubordinate man, declares that he has mutinied, and both parties in every dispute assert that their lives are in danger. If the Consul reprimands a man and desires him to return to his duty he almost invariably refuses, upon the ground that "his life is in danger," and the captain supports him by refusing to receive him for the same reason. "Mutiny" should therefore be better defined; it is essentially a conspiracy, and requires numbers. One man cannot mutiny in its proper sense, and "danger to life" should be left absolutely to the Consul's judgment.

We now arrive at the question if it be possible for a Consul to efficiently perform these magisterial and judicial functions in addition to the duties imposed upon him by the Foreign Office, whose officer he is, from who

he receives his salary, and which duties are his *raison d'être*. The usurpations of the Board of Trade are daily increasing more and more, rendering the most important duties of the Consuls subservient to their own, and making them practically their officers without paying them one farthing, or even making them an allowance to increase their staff.

When the Post Office required the services of Her Majesty's Consuls, it was announced to them that their salaries were paid to them for doing the duty of the Foreign Office, and that if other departments of the State made use of them they must pay them. The consequence was that those Consuls who became Post Office agents received Post Office salaries, and were enabled to form a separate postal department in their offices, and perform their additional duties satisfactorily. Why should the Board of Trade be served gratuitously, to the exclusion of the purely Consular duties?

At important ports, such as New York, Havana, Rio de Janeiro, Buenos Ayres, the average number of complaints each day, from masters or seamen of British vessels, cannot be less than twenty; and the hearing of these in the ordinary summary way, before the Consul, occupies his whole day, to the exclusion of all other business. His means of seeking information, whether on political or commercial subjects, are barred, and he has to trust to his subordinates for drawing up his statistical reports, and making up his public accounts.

In point of fact, the duties now imposed upon Consuls at important stations are more than they can perform; they are bungled through in the best way that the Consul can manage, oftentimes at great pecuniary sacrifices, and always at a wear and tear of mind and body that few of them can long support. It is a false economy to use men up, and if the Board of Trade considers the duties which it imposes worthy of being well performed, it must, in the interest of the Mercantile Marine, pay the principal Consuls such a salary as will enable them to attach a Board of Trade department to their consulates.

ATLANTIC STEAM FERRIES.—No. VII.

THE WHITE STAR LINE.

"Those projects which abridge distance have done most for the civilisation and happiness of our species."—*Lord Macaulay*.

THE Oceanic Steam Navigation Company (Limited), which is the proper name of the line of steamers popularly known as the White Star Line, supplies a wonderful illustration of the expansive character of the trade which has sprung up within the last two or three generations between Great Britain and the United States. It is only five years since this now celebrated company sprang into existence as a steamship organization, and yet it has achieved its position in the foremost rank. Its goods and passenger traffic is great, its vessels are models of speed and construction, and its reputation is certainly a striking testimony to the ability of those who control it.

The chief feature of the management of the Company, and a very powerful element of its success, has been a determination to be in the van of all progress and reform tending to make Atlantic ocean travelling more safe, more speedy, and more comfortable. The management has been essentially one of spirit and of "go," reminding us somewhat of the bold and original commercial spirit of the Americans, who, it may be stated, have ever since its commencement made a favourite of the White Star Line, not the less because the steamers are close assimilations of the best American hotels, but because the vessels are good and speedy and are just suited to the temperament of Uncle Sam's children.

When the White Star Line started, critics in the press, and upon the flags, wagged their heads deprecatingly as to the results of the new competition; but their forebodings have not been realised. The White Star Line has been succeeded by two, if not three, other lines since then, and, notwithstanding the present bad times, decrease of emigration and depressed trade, all the companies seem to hold their own with wonderful tenacity. The truth is, that the White Star Line had a great influence in stimulating the trade between the two countries in all directions, and it likewise had the effect of improving the whole of the Steam Mercantile Marine of Liverpool in a particular direction. It is not human to suppose that shipowners will at once alter the style of their ship, or discard existing and sufficiently good machinery except under the gravest power of compulsion. Compulsion in this case was but another form of competition, and the White Star Company represented the competition. Accordingly, soon after the crack productions of Messrs. Harland and Wolff, of Belfast, appeared in the Mersey with the White Star flag flying, a large number of orders were given out for

shipbuilders for new steamers, or for the improvement of the old ones. The great credit of the unexampled success of the White Star Line is undoubtedly due to Mr. T. H. Ismay, who has had a very large amount of experience in the business, whose reputation as a commercial man is of the highest class in Liverpool, and who has so admirably overcome the difficulties which were presented to him in the new enterprise of the White Star Line.

At this point it becomes interesting to trace the origin of the organization which grew into the White Star Company. In the year 1858 the firm of Nelson, Ismay, and Company commenced business in Liverpool as shipowners and insurance brokers, and established valuable connections with the West Indies and Mexico, by means of first-class sailing ships, and which quickly assumed very considerable proportions. Having organised the West Indian and Mexican business, they next turned their attention to the trade upon the West Coast of South America, which they continued to foster and encourage in a way which in 1872 led the Oceanic Steam Navigation Company (Limited), to despatch for a time large steam vessels to this part of the world. In the year 1863, that is, five years after the commencement of the firm of Nelson, Ismay, and Company, Mr. Nelson, the senior partner, retired, and the partnership was subsequently known as Messrs. T. H. Ismay and Company.

The year 1867 was an eventful one for Mr. Ismay and the concern which he managed, for it was in that year that he began to engage in the Australian trade and to sail his vessels under the White Star which has now attained so much celebrity in connection with the working of the American steam ferry. At that time Mr. H. T. Wilson, then, and for many years afterwards, was well known in Liverpool, as the principal owner of a line of sailing ships trading between Liverpool and Australia, and carrying a White Star flag. The year 1867 was known in Liverpool as one of unexampled financial disaster. The well-known Royal Bank came down, bringing with it many gentlemen in the crash, Mr. H. T. Wilson among the number. Under the circumstances, it was necessary for him to realise to the greatest advantage his shipping business with Australia, and this he did by parting with it to Mr. T. H. Ismay. The branch of shipping trade thus introduced still remains a very substantial part of the business of the White Star Company. Mr. Ismay inaugurated this new business by despatching to Melbourne the iron sailing ship *Explorer*, of the class AA 1, and the Australian trade of the firm is now almost wholly conducted by iron sailing ships, equal in equipment and class, but of greatly increased size, to the *Explorer*. At this time, the sailing tonnage of the firm amounted to nearly 40,000 tons, engaged in trading under the White Star

flag with Australia, California, the West Coast of South America, the River Plate, the West Indies, and Mexico.

Mr. Ismay had, at the same time, not been unobservant of the great opportunities of the American trade. As a director of the National Steamship Company he had many opportunities of judging of the expansive capabilities of that trade, and it is a fact, admitted in Liverpool, that Mr. Ismay may fairly claim to share the success which has of late years attended the proceedings of the Company of which he was a director. The immediate consequence was the formation, in the year 1869, of the Oceanic Steam Navigation Company (Limited). In the following year he was joined by Mr. William Imrie, of the firm of Imrie, Tomlinson & Co., with whom the managing owner of the Oceanic Company had, to use a well-known phrase, "served his time." This firm had a large connection with the West Indies, with which, indeed, it had established the first steam communication from these islands, sending, among others, the well-known steamers, *Hayti*, *St. Thomas*, *Bolivar*, *Christabel*, *Colon*, &c. Another advantage of the accession to the firm of Mr. Imrie, was the bringing over of a considerable East India trade, together with the profits arising from the management of several sailing vessels.

The launching of the "Oceanic Steam Navigation Company, Limited," in 1870, came with all the effect of a startling surprise upon the commercial community of Liverpool. At that time it was considered that, for the present, the limit of development in regard to the transatlantic steamship trade had been reached, and that the existing companies had sufficient vessels, of a character adapted for all the necessities of the Atlantic trade, for some years to come. The manner in which the company was introduced exhibited a boldness and energy which showed to those versed in the commerce of the port of Liverpool that a new undertaking of the most extraordinary character had been brought upon the scene. The shares of the Company, of £1,000 each, were taken by the managers of the line, Messrs. Ismay, Imrie, and Co., and by their friends, including some of the best and most substantial names in Liverpool, and elsewhere. At the present moment the managers are themselves the largest shareholders of the line.

It was an innovation also, with regard to the American trade, that the White Star Company should, instead of resorting to the Clyde, upon which nearly all the first-class American liners then existing had been built, betake themselves to Belfast, where they placed themselves in the hands of Messrs. Harland and Wolff, and instructed them to commence at once the construction of a fleet of powerful and magnificent vessels to be engaged in the trade between Liverpool and New York. The only stipulation made with the builders was, that the ships were to

be constructed of strength, size, and power to equal, if not to surpass, anything which had yet been seen upon the Mersey. The builders were not limited by any contract. They were left to themselves to fulfil the general instructions given, and no one acquainted with the vessels of the White Star Line can fail to admit that Messrs. Harland and Wolff acquitted themselves in a manner which does the highest credit to British shipbuilding. When the first vessels of the line were brought round to Liverpool from Belfast, they created what the Americans describe as a "genuine sensation." They were something utterly unlike in many points to what the shipbuilding critics of Liverpool had been accustomed to, and they at once became the subject of general comment and observation. The first admission which was made, was that the vessels, whatever else they might do, would become remarkable for their speed, and the crack commanders of the old companies were immediately put upon their mettle with regard to what was about to happen. Subsequent events have proved that the builders in designing these vessels have reached a high degree of perfection in speed, and what is more important, safety, no other transatlantic vessels afloat having proved better able to cope with the winter storms so frequent in the North Atlantic, than the White Star Liners, as the average passages in all weathers, given in another page, will serve to demonstrate.

The pioneer ship of the line was the *Oceanic*, which was launched at Belfast on the 27th of August, 1870, and arrived at Liverpool on the 26th of the following February. Whilst in New York she was visited by over 50,000 people, inspired by curiosity similar to that which animated the desire to see the *Great Eastern*. The *Oceanic*, which has now made thirty-three voyages across the Atlantic, is one of the most popular boats in the trade, she having proved herself not only a speedy and pleasant, but a thoroughly safe sea boat. She has more than once completed the passage between Queenstown and New York in 8½ days, and has come over from New York to Liverpool in a little over 9 days. The succeeding vessels of the line followed each other rapidly, and were turned out of the builders' hands with every requisite and appliance for their work. Thus, the *Baltic* sailed from Liverpool in September, 1871, and was followed by the *Republic*, so named because she was launched on the 4th of July, 1871—Independence Day in the United States—which vessel started upon her first voyage on the 1st of February, 1872. The *Adriatic* sailed on the 11th of April following, and the first section of the White Star fleet was completed by the sailing of the *Celtic*, on the 24th of October in the same year. Since that time the Company have built two more steamers on the same type, but of greatly increased size and power, which are acknowledged to be models of construction, form, and speed, namely, the *Germanic* and the *Britannic*.

The following is a complete list of the steamers of the Company at present engaged in the American trade :—

Vessels.	Tons.	Nom. H.P.	Saloon.	Captain.
<i>Britannic</i> ...	5,004	760	200	W. H. Thompson.
<i>Germanic</i> ...	5,004	760	200	C. W. Kennedy.
<i>Celtic</i> ...	3,888	650	150	B. Gleadell.
<i>Adriatic</i> ...	3,888	650	150	H. H. Perry.
<i>Republic</i> ...	3,707	600	140	S. G. Porter.
<i>Baltic</i>	3,707	600	140	J. W. Jennings.
<hr/>				
	25,198	4,020	980	

Traffic, 300 tons, 40 h.p. ; steam lighter.

In addition to the above, the *Oceanic*, the pioneer of the line, and two more steamers, the *Belgic* and the *Gaelic*, of similar type but smaller dimensions than their compeers, are engaged in the North Pacific trade between San Francisco, Yokohama, and Hong Kong, under charter to the Occidental and Oriental Steam Ship Company of San Francisco :—

Vessels.	Captain.	Tons.	H.P.	Saloon.
<i>Oceanic</i> ...	H. Parsell ...	3,707	500	140
<i>Belgic</i> ...	T. Metcalf ...	2,651	800	40
<i>Gaelic</i> ...	W. H. Kidley	2,651	300	40
<hr/>				
		9,009	1,100	220

This service was inaugurated by the steamer *Oceanic* in April, 1875. Her voyage was eminently satisfactory, she having passed safely through the Suez Canal, *en route* to the China Seas, being the largest vessel that ever went through the Canal. She also accomplished the fastest time on record from Hong Kong and Yokohama to San Francisco, her time between the two latter ports being 16 days 10 hours, not made, by the way, under the most favourable circumstances of wind and weather. The railway journey across the North American continent lasts 7 days, and the Atlantic passage 9 days, thus bringing Japan within 35 days of London as against 60 days by the Suez mail route. This is an important enterprise, which well deserves the attention of Government and the public. In the case of the *Oceanic*, her entire cargo of tea was delivered in New York *twenty-eight days after it left Yokohama*. The same feat has been accomplished by the *Belgic* since.

Among the several distinctive features of the above vessels which have all been built for the White Star Company at Belfast, is the fact that they are constructed upon the floating tube principle, with seven water-tight and fire-proof iron bulkheads, and four masts. In accordance with the practice of utilising steam for minor purposes, these vessels are

steered by steam, which is also very largely used in their general working. Indeed, we believe we are correct in stating that to the White Star Line belongs the honour of first introducing McFarlane Gray's patent steam-steering apparatus, as manufactured by George Forrester and Co., of the Vauxhall Foundry, Liverpool, into the Mercantile Marine, which has now come into general use on board ocean-going steamers. One particular feature which will have a considerable interest for those who are afflicted with what the French call the *mal de mer*, is that the saloon, state-rooms, bath and smoking-rooms are placed in the centre of the vessel, and their occupants therefore have considerable advantages in regard to a decreased amount of motion, and no annoyance whatever from the vibration of the screw. It is not astonishing to find that the White Star vessels are particular favourites among the Americans, not the less because of their speed, but because of several American improvements which have been introduced into them. For instance, each vessel possesses what every American considers to be a positive necessity, namely, a splendidly-appointed barber's shop. In addition, it should be mentioned that some of the ships have Newall's patent swinging berths, which are suspended upon the same principle as Mr. Bessemer's celebrated saloon in the vessel constructed for the passage between Dover and Calais. Among the literature which has attended the career of the White Star Line may be noticed a pamphlet, named "The Republic Extra," a journal of the voyage of the *Republic*, edited at the request of the passengers by Colonel E. C. James, of Ogdensburgh. The journal proves at least that the passengers are thoroughly able to enjoy their voyage across the Atlantic. With regard to the attendance upon passengers, every possible arrangement for comfort and convenience has been made. All the ships have stewardesses appointed to them, both for the saloon and the steerage passengers, and with regard to the steerage, there are separate apartments for single women, married couples, and single men respectively. It has been over and over again admitted that the sanitary and personal arrangements of the steerage apartments on board the White Star vessels are of the most improved and complete kind. This part of the story of the Company should not be closed without the mention of a fact most honourable to its officers, namely, that they have been enabled to save considerably over 100 lives, whom they rescued from watery graves, during the past four or five years.

As a practical guarantee of the care and forethought exercised by the Company, it may be stated that they take a large amount of the risk of insurance on each vessel, and insist upon a complete inspection by the commanding officer before every voyage. At these inspections, one of the owners and the Marine Superintendent are, as a rule, present, and the men are then put through the boat service drill and the drill in defence

of fire. The same is also performed once or twice at sea, in which instances the men are always called upon without notice. The discipline is hardly less pronounced than on board one of Her Majesty's ships. The same solicitude is exhibited by the owners in their instructions to commanders. They enjoin them "to remember that whilst they are expected to use every diligence to secure a speedy voyage, they must run no risk which might by any possibility result in accident to their ships. It is to be hoped that they will ever bear in mind that the safety of the lives and property entrusted to their care is the ruling principle that should govern them in the navigation of their ships, and no supposed gain in expedition and saving of time on the voyage is to be purchased at the risk of accident. The Company desires to establish and maintain for its vessels a reputation for safety, and only looks for such speed in the various voyages as is consistent with safe and prudent navigation." Again, there is an instruction, "A wide berth to be given to all headlands, islands, shoals, and the coast generally; and the commanders are particularly enjoined, on all occasions when nearing the land, or in places of intricate navigation, to heave the lead and to take frequent cross-bearings of any well-marked objects that may be visible and suitable for verifying the position of the ship." The question of *safety* being ever held paramount over all other considerations, the owners of the White Star boats have enjoined their commanders to follow strictly laid-down tracks for the various seasons of the year. Thus in the months from February to July, inclusive, when the ice is drifting with the Gulf Stream, the White Star vessels are navigated by a southerly track, being taken south of the Banks. In the months from August to January, inclusive, when the ice has drifted, and the northern parallels are clear of ice and fog, the boats take the northern route. These tracks apply to the outward voyages from Queenstown to New York; but as regards the homeward passages, an uniform extreme southern route is followed, taking the steamers about 100 miles south of the Banks, so as to altogether avoid meeting the outward-bound boats. The following notice heads the White Star advertisement in the papers in this country, and indicates the course taken:—"Notice: The steamers of this line take the Lane Routes, recommended by Lieutenant Maury, on both the outward and homeward passages." The subjoined appears in the American advertisements:—"Notice: The steamers of this line take the Lane Routes, recommended by Lieutenant Maury, U.S.N., going south of the Banks on the passage to Queenstown, all the year round."

The White Star Company, very soon after its commencement, was selected by the United States Government to carry the United States mails. Up to the year 1875, the speed of the vessels of this line had

been celebrated in particular by the passage of the *Adriatic* from Queens-town to Sandy Hook in 7 days 23 hours 7 minutes, and of the *Baltic*, from Sandy Hook to Queenstown, in 7 days 20 hours 9 minutes. The highest day's run ever accomplished was made by the *Adriatic*, which ran 396 knots, or 455 statute miles during the 24 hours, on the 10th April, 1873.

The following table gives in a compendious form the performances of the several vessels of the White Star Line :—

S.S. "GERMANIC."			D. H. M.		
(Queenstown towards New York)					
1875	...	7 voyages, averaging ...	9	5	16
(New York towards Queenstown.)					
1875	...	6 voyages, averaging ...	8	10	46
S.S. "BRITANNIC."					
(Queenstown towards New York.)					
1874	...	3 voyages, averaging	9	12	13
1875	...	6 voyages, averaging	9	5	35
		Say 9 voyages, averaging	9	7	48
(New York towards Queenstown.)					
1874	...	3 voyages, averaging	8	20	42
1875	...	6 voyages, averaging	8	12	8
		Say 9 voyages, averaging	8	14	59
S.S. "ADRIATIC."					
(Queenstown towards New York.)					
1872	...	7 voyages, averaging	9	8	15
1873	...	10 voyages, averaging	9	15	24
1874	...	8 voyages, averaging	9	18	9
1875	...	10 voyages, averaging	9	8	17
		Say 35 voyages, averaging	9	11	10
(New York towards Queenstown.)					
1872	...	7 voyages, averaging	8	13	48
1873	...	10 voyages, averaging	8	13	17
1874	...	7 voyages, averaging	8	6	42
1875	...	10 voyages, averaging	8	11	27
		Say 34 voyages, averaging	8	11	30
S.S. "BAL TIC."					
(Queenstown towards New York.)					
1871	...	1 voyage ...	8	19	52
1872	...	10 voyages, averaging	9	6	6
1873	...	10 voyages, averaging	9	10	20
1874	...	9 voyages, averaging	9	18	25
1875	...	8 voyages, averaging	9	11	3
		Say 38 voyages, averaging	9	9	44

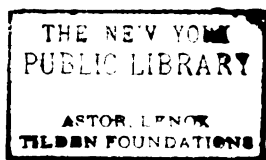
(New York towards Queenstown.)					
1871	...	1 voyage	...	8 15	3
1872	...	9 voyages, averaging		8 14	11
1873	...	10 voyages, averaging		8 13	14
1874	...	9 voyages, averaging		8 10	46
1875	...	9 voyages, averaging		8 21	32
Say 38 voyages, averaging					8 14 53
S.S. "CELTIC."					
(Queenstown towards New York.)					
1872	...	2 voyages, averaging		10 18	52
1873	...	11 voyages, averaging		9 10	10
1874	...	9 voyages, averaging		9 18	41
1875	...	10 voyages, averaging		9 18	2
Say 32 voyages, averaging					9 16 17
(New York towards Queenstown.)					
1872	...	2 voyages, averaging		8 23	10
1873	...	11 voyages, averaging		8 23	16
1874	...	9 voyages, averaging		8 16	54
1875	...	9 voyages, averaging		8 23	34
Say 31 voyages, averaging					8 21 30
S.S. "REPUBLIC."					
(Queenstown towards New York.)					
1872	...	6 voyages, averaging		9 13	38
1873	...	5 voyages, averaging		9 22	35
1874	...	10 voyages, averaging		9 21	37
1875	...	6 voyages, averaging		9 23	41
Say 27 voyages, averaging					9 20 29
(New York towards Queenstown.)					
1872	...	6 voyages, averaging		8 15	2
1873	...	5 voyages, averaging		8 22	46
1874	...	10 voyages, averaging		9 0	40
1875	...	6 voyages, averaging		9 7	1
Say 27 voyages, averaging					8 23 42

The following are the most remarkable passages in each year :—

OUTWARDS.

(Queenstown towards New York.)

					DAYS.	H.	M.
<i>Baltic</i>	...	...	Sept., 1871	...	...	8	19 52
<i>Adriatic</i>	...	...	May, 1872	...	...	7	23 17
<i>Adriatic</i>	...	...	Sept., 1873	...	...	8	4 52
<i>Britannic</i>	...	...	June, 1874	...	...	8	1 58
<i>Germanic</i>	...	...	July, 1875	...	...	7	23 7





HOMEWARDS.

(New York towards Queenstown.)

<i>Oceanic</i>	...	...	June, 1871	...	...	8	7	18
<i>Baltic</i>	...	...	Dec., 1872	...	...	7	23	22
<i>Baltic</i>	...	...	Jan., 1873	...	...	7	20	9
<i>Adriatic</i>	...	...	Oct., 1874	...	...	7	23	12
<i>Germanic</i>	...	...	Aug., 1875	...	...	7	22	8

These passages, remarkable as they are, have however been completely eclipsed by that just made by the *Germanic*, as the following will show :—

ABSTRACT OF LOG OF THE S.S. "GERMANIC," C. W. KENNEDY,
COMMANDER.

From New York *via* Queenstown, towards Liverpool.

Date.	Winds.	Courses.	Distances.	Lat.	Long.	WEATHER.
1876 Feb.				N.	W.	
5	Left Company's	Wharf 1-32 p.	m., passed	Sandy	Hook,	3-8 p.m., dis'ch'd pilot 3-22 p.m., proc'd full speed, 3-25 p.m.
6	S.S.E.	N. 87-37 E.	313	40-41	67-12	Moderate and fine.
7	Southerly,	" 85-19 "	380	41-12	58-52	Strong breeze and overcast.
8	Variable,	" 85-21 "	383	41-43	50-24	Fresh breeze and squally.
9	N. to N.N.W.	" 63-50 "	372	44-27	42-47	do. do. do.
10	Variable,	" 62-57 "	376	47-18	34-46	Strong.
11	"	" 70-52 "	360	49-16	26-16	Fine.
12	"	" 76-01 "	360	50-43	17-13	Moderate and cloudy.
13			350	to Queenstown,		Arrived 10-47 a.m., Roche's Point out 1-20 p.m. Anchored off Bar Lightship, 8-33 a.m., waiting for tide, 11-40 a.m. proc'd, 12-25 Rock Light.
14	In Channel.					
			2894			

Total distance traversed 2,894 knots, equal to 370 knots per day, 15-8 knots per hour. Duration of passage from Sandy Hook to Queenstown, 7 days 15 hours 17 minutes.

This, it need hardly be said, is claimed with justice as the shortest run on record between the United States and Great Britain, and goes to show that in their last ship the White Star Company have been able to improve even upon their former models. As the *Germanic* may be styled the typical ship of the line, her predecessors being as near as possible identical in appearance, power, appointments, and internal arrangements, we may quote a few extracts from a description recently written of her, when in graving dock, by a contributor to the Official Guide of the White Star Line :—

"Contemplating the sharpness of the vessel's bow, we were at the same time struck with its canoe-like form below the water-line, designed to enable her to answer the helm promptly, which she does with the ease and promptitude of the smartest yacht. We walked underneath

while the painters were hard at work, and remarked the wonderful smoothness and clean cut of her plates. The ponderous propeller, with its fish-like fans, was as intact as when first made; indeed, the vessel, which had only undergone what might be called a painter's overhauling, looked the pink of newness. She might have been only just turned out of the builder's hands, instead of having made many voyages, so clean and perfect did she appear to be, lying quietly on the blocks, with a cold November sun falling upon her graceful yacht-like lines. As she was to sail in two or three days, everything on board betokened readiness for the voyage. Nothing could be more carefully considered, from a passenger's point of view, than the arrangement of this remarkable vessel. The saloon and state-rooms are in the centre of the ship, where the least motion is felt; they are furnished luxuriously. A staircase as broad, and well lighted by night and day, as one might look for in a first-class hotel, leads to the saloon, where there is ample room for dining 200 persons, giving to each diner his or her own seat, not of undefined capacity on a settee, but a chair with revolving seat, which is kept at every meal for the passenger to whom it is allotted at the commencement of the voyage, and can be approached at any time during the progress of the meals without disturbing the others. There is nothing to indicate that you are on ship-board; indeed, there is every appearance of hotel life of the most elegant and comfortable style, including even an open marble fireplace, which substitutes the customary stove, and gives an additional air of homeliness to the scene. The saloon extends the whole width of the vessel, and is 52 ft. 9 in. in length, and 42 ft. 6 in. in breadth. The floor is inlaid with polished oak, ebony, and walnut. Into the panelling of the walls is introduced polished maple, pleasantly relieved with white and gold enamel. The port-hole windows are of unusual size, and are, at a glance, massive and tasteful, being constructed to meet the requirements of calm or storm; whether regarded, therefore, as a dining-room or a lounge, the saloon must satisfy the most critical and exacting of passengers. Close by is the ladies' boudoir, as cosy as it is pretty, being 19 feet by 12 feet, beautifully upholstered in red velvet, and having the advantage of being situated on the promenade deck. The smoke-room is on the main deck, open to sea and sky, or closed to both, as the smokers may desire. Little round tables are conveniently placed near the easiest of lounging chairs. The room is quite a narcotic paradise. Complete precautions are taken to make the apartment safe as well as comfortable. Forward and aft of the saloons are the state-rooms, each being furnished as completely as the most luxurious mortal could wish; some of them are fitted up with berths on the Newall principle, by which the motion of the vessel is modified to a nicety. Every berth on the *Germanic* is connected with

the electric bell system, and a touch of the finger to the little ivory disc commands the instant notice of the attendants, and the same novel means of communication is also applied to the saloon, and smoke-room, and ladies' boudoir. An old traveller, known as peculiarly critical in the matter of passenger accommodation, told us he had done all he could to find fault with the *Germanic*. He had overhauled her fore and aft, and had at last hit upon a grievance—he did not consider that the library had been selected with sufficient regard for the classics! Nothing could better illustrate the thoughtfulness which has presided over the design of the ship. Adjacent to the saloon is a barber's shop, fitted with every modern appliance, including a toy-like steam engine, which drives the rotary brushes. The shop opens upon a capacious bath establishment. Further on, the astonished visitor is introduced to a nursery, and then to servants' apartments, all betokening the same consideration for health and comfort which provides swing berths and easy chairs. The kitchens and pantries are unique. The *chef* can send up a dinner for several hundreds every day without difficulty, and the *cuisine* is quite worthy of the best hotel establishment ashore. The store-rooms are simply warehouses of groceries and provisions on a scale which would far outvie many of our largest hotels. Beyond all these wonders of internal fittings there are capacious specie and mail rooms, carpenters' shops, a surgery, sculleries, fresh meat stores, and a well ventilated hospital for steerage passengers who may chance to require medical attendance during the voyage.

“Each steerage passenger has a good roomy berth, and while having due regard to economy of space, an excellent dining-room is provided by a clever contrivance. The berths are unshipped in sections, and a table with attached seats is dropped from the roof and stowed away again when not in use. It is a rule in the whole of the White Star vessels not to carry steerage passengers on a deck unlighted by port holes from the side or below the water-line: thus the number of passengers is never so great as in steamers which carry them on three decks, and anything like crowding is therefore avoided. The *Germanic* has separate sleeping apartments for the sexes, the married couples being berthed by themselves, and the single men and women having each separate apartments. Lavatories, washhouses, and other conveniences are arranged with a careful regard to delicacy and comfort in deckhouses, the entrances to which are below, in the respective apartments to which they are attached. The height from the ceiling to the floor of the apartments exceeds the Government regulations. The portholes are of unusual size and strength, and give plenty of light. They open from the inside, and can therefore be used at all reasonable times to admit fresh air. In summer the ship can be kept airy and pleasant; in winter the vessel is

heated by steam, and every corner made warm and snug. The entrance to the steerage accommodation is not by steep and dangerous ladders, as is too often the case in emigrant ships, but by broad, permanent, sloping stairs, safe and easy of descent. Indeed, the steerage of the *Germanic* and the attention given to the passengers greatly exceed what used to be given even to first-class passengers a few years ago. There are, in addition to the above, stewardesses to assist the women and children. Medical attendance and medicines are provided free of charge. The commander walks the round of the steerage at stated intervals every day, accompanied by the purser and doctor. An abundance of well-cooked provisions of a varied character is served by the stewards at the usual meal times, and at all hours there is an unlimited supply of fresh water and biscuits. Special accommodation is provided for the luggage of steerage passengers on their own deck. The main deck is given over to the use of the steerage passengers, and forms a roomy promenade 400 feet in length. This is quite distinct from the hurricane deck, which is devoted to the use of the saloon passengers, giving to them a long unbroken promenade which on a fine day must be a luxurious picture.

"Steam does everything on board the *Germanic*. He warms the child's berth; he weighs the anchor; he turns the barber's brush; he loads and discharges the ship; and rests not night nor day. The steering is done by steam amidships in a house situated at the end of the hurricane deck. The bridge is immediately in front of the wheel, and instructions are given direct to the helmsman and engineer alike by electric telegraphy and answered the moment they are given upon a dial under the eye of the captain. This is a peculiarly wise arrangement, as there is nothing to interrupt the view ahead of the captain, and no obstruction between himself and the man at the wheel. In case the steam-steering apparatus breaks down, the ordinary hand-steering arrangement is fitted up in a deck-house immediately above the rudder. This takes four men to work, whilst the steam arrangement can be worked by a child.

"Let us now penetrate the recesses where the giant holds his court. Diving into the deepest depths of the engine-room, we find that the space allotted to the machinery is unusually great—107 feet in length. There are eight boilers, and the interstices between them are constantly swept by copious supplies of cold air. The nominal horse-power of the engines is 760, but they are capable of working up to 5,400 horse-power. There are two engines, each contains a high and low pressure cylinder, four in all. Should one engine be disabled, in the space of an hour it can be disconnected, and the other engine will do the necessary work; and in the event of the high-pressed cylinder of one engine becoming disabled, the remaining low-pressed cylinder and the other uninjured engine can continue working, or *vice versa*, thus demonstrating the unique

capabilities of the White Star machinery. We noticed with particular interest the safeguards against sinking. Five water-tight bulk-heads run from the top to the bottom of the ship. These are supplemented by self-closing doors and other appliances designed to confine a leak or the effect of an accident to that part of the vessel to which the mishap may have occurred. Various appliances of this kind are spoken of in connection with many modern vessels, but when the need of them arises we often hear that they are out of order, or were not properly manned at the trying moment of necessity. The White Star builders have provided against this by making their doors perfectly self-acting, and almost independent of human agency altogether at the moment of need. In one compartment, containing the after set of boilers, the door which leads to the next compartment is arranged for prompt water-tight closing. Should the water find its way into the neighbouring compartment, the engineer in charge has only to turn a lever and the ponderous door falls into its place, regulated in its descent by an air cylinder which checks the door and causes it to fall in jerks. In another compartment you find that the iron way, upon which you walk, is automatic. Should the sea find its way beneath, the door (for the flooring upon which you have passed is, after all, only a kind of iron bridge) rises by the action of the water, and confines the water to a section of the vessel. There is nothing more remarkable in the fittings of the *Germanic* than these self-acting doors, which we found in perfect order, working with a simplicity only equalled by the importance of the work they can accomplish. A few days after our visit to the Graving Dock we observed the *Germanic* steaming gracefully down the river, as spick and span as when she reclined on her blocks like a model, focussed for an artist. Every captain on the river turned for a moment to admire her as she proceeded on her way, her four masts full rigged setting off her rakishly set elliptical funnels, and adding nautical point to the clean sweep of her hurricane deck."

The White Star Company have had the compliment paid to them of having their commanders selected by the Government to fill posts of responsibility on shore. The Board of Trade, in the year 1873, chose Capt. Digby Murray, the Commodore of the Fleet, and then in active service, to take the important post of marine adviser, to that Department; and another of their commanders, Capt. W. W. Kiddle, of the *Celtic*, has been appointed Chief Surveyor for Ireland, under the provisions of the Merchant Shipping Act. The marvellous success of the White Star Line is one of the most remarkable instances upon record of what pluck and business ability will do under apparently adverse circumstances. As its vessels are invariably full of passengers, the popularity of the line is as indubitable as its success as a commercial undertaking, and Messrs.

Ismay, Imrie, and Co., and their co-manager, Mr. G. Hamilton Fletcher, formerly of Liverpool, who have so ably guided the Company into its present eminent position, are to be congratulated upon having achieved a triumph of a character which is without many precedents, even in the marvellous records of British commerce.

"Sail on! sail on! ye stately ships!
And with your floating bridge the ocean span."—*Longfellow.*

COMPULSORY CLASSIFICATION.

IT appears certain that during the present session there will be a strong fight upon the question of the compulsory periodical survey of merchant ships. The whole subject has recently been ably treated by a writer in *Engineering*, whose views, we need hardly say, are in direct opposition to ours. We think that he has exhausted the argument for his side of the controversy, and we are glad to have the opportunity of discussing the question with an opponent whose remarks are made in a temperate spirit. The writer, indeed, does not aim at sensation, but at business; his object is not to harrow the feelings of the public by awful disclosures of the persistent villany of the shipowner generally, but to compel all ships to come under the rules of Lloyd's Registry, and to contribute to the glory and prosperity of that institution. The Liverpool Registry is a child of Lloyd's, and though a prodigal and disobedient child, must be acknowledged. Accordingly, its 500 ships are regarded by the writer in *Engineering* as "classed," and so are the 6,000 which have a letter in Lloyd's book, the remaining 5,000 British vessels being put down as "unclassified" whether they are under the survey of another registry or not. Further, a new and more stinging epithet was recently applied to this unfortunate 5,000, and henceforth they are to be known as the "disclassified," because most of them, it is said, were built under Lloyd's rules and survey, but the owners have refused to make such repairs as were necessary for maintaining their class at Lloyd's. We should have said, however, that from the unclassified are first deducted 500, the estimated number of the large vessels owned by first-rate firms which are practically admitted to be above and beyond Lloyd's. A further deduction is made for a number of ships owned by men who have the audacity to think for themselves, which ships for the most part are seaworthy, but through the stiffneckedness of their owners would obtain only a low class at Lloyd's, and to this the owners prefer no class at all. Our writer complacently remarks that "the number of

ships in this category is not great, because the number of men and firms able for the time to carry on their business in this high-handed fashion is necessarily limited." That the number of these men may never be less is our sincere wish, for such manly independence on the part of shipowners furnishes the best guarantee for the improvement and development of our Mercantile Marine. The outside world is persistently told that all wisdom is embodied in Lloyd's rules, and yet, strange to say, those rules are subject to constant and important change. If it were not for the opposition of independent shipowners, who happily can afford to do without Lloyd's, the rules might be stereotyped. This result would be of course brought about by handing over the entire control of the Mercantile Marine to Lloyd's Registry.

By thus deducting the ships registered in the Liverpool book, the acknowledged *élite* of the Mercantile Marine, which are above Lloyd's, the rebels, and lastly yachts, river steamers, &c., we get the number of the genuine "unclassed" or "disclassed," set down at something over 3,500. Our writer further stigmatises these as "lamie ducks," and as the "residuum." By implication, the ships classed in the foreign and colonial societies are included among the "disclassed," the existence of such societies being apparently altogether ignored by our contemporary. And yet such societies do exist, with rules good enough in their way, and books as well got up as Lloyd's, and staffs of surveyors. How are we to account for this implied difference between their surveys and those of Lloyd's, and the assumed inferiority of their ships to those on the English book? Not because they are, in the first instance, inferior either in material, scantling, or workmanship; for our writer tells us that most of the now "unclassed" ships were originally classed in Lloyd's. Obviously, then, the reason must be that the surveys for continuation and restoration are better done by Lloyd's than by rival registries. Our writer speaks of the "residuum" as if they were subject to no such surveys at all; some of them probably are not, but we believe the majority are. If, then there is so great a difference as the writer in *Engineering* assumes between surveys conducted under Lloyd's and similar surveys for other societies, wherein can the difference lie? Not in the rules, we think; for by only casually looking through them, it may at once be seen that in these surveys, more than in anything else, very much is left to the judgment of the individual surveyor. To put the case clearly, then, we maintain that if there is so decided a superiority in Lloyd's surveys to all others, as is maintained by our contemporary, it must be chiefly due to better men rather than to a better system. What guarantee have we that this superiority will be maintained if we remove the outside stimulus of competition, and alter altogether the design and purpose of the Registry. The reason why Lloyd's is in its present high position

is because, for the most part, its work has been done well, and its surveyors have been well chosen. The information furnished to underwriters has been of great value; the more complete and reliable it has been, the greater its value, and hence the society has been compelled to activity and energy in order to keep its position.

Every one is familiar with the way in which a mere *pass* survey may degenerate, unless it be carefully supervised. We heard recently a description of the way in which a survey of this character is actually carried out, and we think the account is worth repeating. In the case in point, not only compulsory survey, but that much desired institution—the load-line—flourishes in full perfection. A surveyor comes off to the ship and tries the caulking, the vessel, it may be, having been caulked a month or two before. He orders her to be caulked, and workmen, who it is believed fee the surveyor, come off to caulk the ship. They make a small stage and caulk just so much of the side as can be done on their stage, and then the surveyor on his next visit passes the whole. In one instance, six upper seams are ordered to be caulked but six lower ones having been done in mistake, it is all the same, the ship is passed. We can only do justice to one case by giving the conversation verbatim.

Surveyor: "Your ship wants caulking, Captain."

Captain: "She is iron."

Surveyor: "Well caulk the deck."

Captain: "The deck is iron too."

Surveyor, determined not to be beaten: "Then caulk the poop deck."

And the poop deck is caulked accordingly.

The surveyor moreover, is not to be bribed; let the captain attempt it, and he renders himself liable to a heavy fine. There is a way, however, and that way is through an agent who appropriates a large percentage as toll. If the agent has not been satisfied when the load-line comes to be marked, it is put so ridiculously low that the vessel will not carry anything like her proper cargo. It is not, however, too late to make matters straight, for another surveyor has to come and see that the vessel is not put down below her mark. The mark is for simplicity's sake only put on one side, and if number 2 surveyor be satisfied, the vessel may be loaded down to the water's edge on one side, provided the mark on the other is above water. Such is the way in which a mere *pass* survey has degenerated.

We do not believe in the efficacy of *pass* surveys, as a means of clearing out unseaworthy ships. As we have said time after time the right thing to do is to fix on owners the responsibility of keeping their ships seaworthy, and let the Board of Trade keep a look

out for unseaworthy ships, that is for ships showing signs of unseaworthiness. While on this point, we must take exception to a remark made by our contemporary as to the statistics of the Board of Trade operations under the recent Acts. It is said that, out of 418 ships reported by Board of Trade officials, 406 have proved unseaworthy. From this the inference is drawn that, if the 3,500 "disclassified" ships were all examined, a large number of them would prove unseaworthy. What the returns really prove is that the Board of Trade surveyors have only made twelve mistakes—nothing more. They have not reported vessels indiscriminately, but only when they have seen signs of unseaworthiness, such outward and visible signs as generally do accompany decided unseaworthiness. It must be remembered in this connection that the Registry and the Board of Trade aim at quite distinct purposes. The former open up ships in order that they may be able to say what repairs are necessary to enable them to run for a number of years; the latter, in order to determine whether the vessel dealt with is unseaworthy for her intended voyage, and, if so, what will make her seaworthy.

The writer in *Engineering* brings forward statistics to prove that more unclassified ships are lost than classed. Regardless of the fact that the existing agitation is got up mainly in connection with loss of life at sea, he says it is unfair to consider merely the number of lives lost, because all emigrant and passenger ships are classed, and when one such ship is lost it swells inordinately the number of lives. The conclusion is that of the ships which foundered at sea, or were missing in the eighteen months ending June, 1875, losses occurred among classed ships to the extent of 2·98 per cent., and among unclassified 5·51 per cent. All statistics on this subject have proved illusory; those before us are no exception. It should be remembered that a large majority of new ships are classed, and the statistics, to be of any value, should show how the matter stands with vessels of over six years for soft, and twelve for hard-wood vessels, giving such results separately. What is wanted is a comparison between the losses of classed and unclassified ships, age being the same; and any return which throws the bulk of new ships in with one side is altogether unfair to unclassified ships. Again, we find, on examining the statistics, the somewhat strange result that, while the numbers of classed and unclassified ships foundered and missing are respectively 180 and 301—taking the total losses from wreck and stranding, as well as foundered and missing—we get 316 classed against 673 unclassified, from which we see that, taking the losses from wreck and stranding, which, of course, depend much less upon the condition of the ship herself, we get 136 classed against 372 unclassified. That is, the losses of unclassified ships, which most exceed the losses of

classed ships, are just the kind which depend least upon the condition of the ship herself.

There is one part of the question of the compulsory survey of ships which, so far as we know, has not yet been noticed. It is proposed to accept Lloyd's certificate as a guarantee of seaworthiness, but not the certificate of any other registry, except, indeed, the Liverpool book, which is only for iron. All our shipping legislation hitherto has been accepted by British colonies without complaint, because it is manifestly just and fair. Would they consider it fair treatment if only the certificate of a British society were accepted, and if the survey of those societies, which are as much to them as English Lloyd's is to us, were treated as worthless? We are inclined to think that, under such circumstances, they would claim the right to legislate for their own shipping.

The writer in our contemporary concludes by adducing other cases, in which Government hands over details to representative bodies in cases where it is impossible to exercise direct control. We suppose it is to be inferred that Lloyd's is as much a representative body as the Metropolitan Board of Works, School Board, &c. This we deny altogether; it is true the shipowner and underwriter are represented on Lloyd's Committee, but they are able to look after their own interests, and, if only they were concerned, there would be no reason for Government interference at all. It is in the interest of the seaman that the Government interferes, and failing ability on his part to look after himself, it is supposed that the Government must look after him, and must delegate that duty to no representative body, unless the seaman is represented thereon. If it be decided that all merchant ships shall be subjected to periodical surveys, that duty must be undertaken by the Board of Trade, and no certificate of a registry society can be accepted as a guarantee of seaworthiness, unless all such societies have the like privilege. There might indeed be some reason in advocating strongly the claims of Lloyd's, or any other Register Society, to be a recognised certifying authority, if the Government had direct control over the proceedings of such society; but this, we imagine, would be regarded as an unwarrantable interference with the business of a private company.

In the article we have been criticising, it is quietly assumed all through that a class at Lloyd's is a certain guarantee of seaworthiness. While we have the highest respect for the Registry, we think that this is not quite so certain after all.

METEOROLOGY.

REPORT OF THE METEOROLOGICAL COMMITTEE TO THE PRESIDENT AND COUNCIL OF THE ROYAL SOCIETY ON THE WORK DONE IN THE METEOROLOGICAL OFFICE SINCE THEIR APPOINTMENT IN 1866 TO DECEMBER 31, 1875.

THE business of the Office will be reviewed under the three heads into which it is subdivided and which are as follows :—

- I.—Ocean Meteorology. •
- II.—Weather Telegraphy.
- III.—Land Meteorology of the British Islands.

I.—OCEAN METEOROLOGY.

The most important task of the Committee at its first institution was to examine and to take stock of all the instruments and materials for work existing in the Office.

Inquiry was made into the actual condition and employment of all instruments outstanding on the books, whereby several were recovered, and several proved to be non-existent. Since 1867 no instruments have been supplied, except for the public service.

The books in the Office, which have been kept since 1854, enable us to trace the history and corrections of every instrument which has ever been purchased.

The entire store of documents in the Office was carefully examined by Captain Toynbee ; those that were worthless were set aside, and in the remainder the quality of each element which they contained was marked.

The Office then resumed the supply of instruments to observers at sea, and re-organised the agencies at certain ports. These agencies are paid according to results. The outcome of these operations is shown in the Annual Reports.

Among the most important benefits to the science attributable to the action of the Committee has been the great improvement in the quality of the logs sent in, owing to the care taken to select observers.

The following figures show the total number of *logs*, and the number of first class *logs*, classed "*excellent*," which have been received each year from the *Mercantile Marine*, since the management of the Office has been under the Meteorological Committee.

Year.	Total No. of Logs received.	No. of Excellent Logs.	Percent of Excellent Logs.	Year.	Total No. of Logs received.	No. of Excellent Logs.	Per cent of Excellent Logs.
1867	21	7	33	1871	150	72	48
1868	50	10	20	1872	110	64	58
1869	67	21	31	1873	92	52	57
1870	81	41	51	1874	88	56	64

The marked improvement shown in the last few years is doubtless entirely due to a thoroughly systematic supervision by Captain Toynbee of all logs received. In every case where improvement is considered necessary, and reasonably practicable, the captain responsible for the log has been communicated with, and in many cases induced to call at the Office for a personal interview.

The high percentage of excellent logs in recent years is in no way to be attributed to a lower standard of excellence being used; on the contrary, the standard of excellence may be considered to have increased rather than to have diminished.

It seems that greater weight should be attached to the relative values above, from the fact that the classification has been carried out by the same person throughout the whole period, so that the method of classification would doubtless be uniform.

The continuity of the observations and the hours at which observations have been recorded are of late years more in accordance with the generally accepted principles for the calculation of mean results.

At the same time it should be remarked that there is great difficulty in securing a supply of observers, and that it is in contemplation to relax in some measure the rigour of the tests applied to the observations.

As regards our Methods of Operation and our Instructions for keeping the Log, the latter were printed in full by the recent Maritime Conference held in London in 1874, and an extract of the Methods was also given.

The works published by the Office in this Department have been:—

- O. 4. Charts of Surface Temperature for the South Atlantic, Monthly, and for 5° Squares, representing the Observations from Board of Trade Registers, and also results for smaller spaces from the Dutch Records published in *Ondersoekingen met den Zeethermometer*.
- O. 11. Contributions to our Knowledge of the Meteorology of Cape Horn and the West Coast of South America. Monthly tables, charts, and summaries of observations from 5° Squares; materials collected by Admiral FitzRoy, and supplemented by data from other sources and for other localities. This contribution is of some im-

portance as preliminary to a more complete investigation into the meteorology of that region. Among the points brought out by it are the existence of an area of high barometrical pressure on the Tropic of Capricorn in the South Pacific, like those on the two tropics in the Atlantic, and also the fact that sea surface temperature ranges *above* that of the air, even in the region of Humboldt's Current.

0. 12. The Currents and Surface Temperature in the North Atlantic, 0°—40° N., giving for $2\frac{1}{2}$ ° Squares, Monthly Charts for Direction and Velocity, and for Temperature, and an Annual Chart.

These were the first monthly current charts which were published, excepting those of Lieut. Fergusson for the Indian Ocean, &c.

0. 13. On the Weather of the North Atlantic in February, 1870. This paper will be noticed under Weather Telegraphy.
0. 18. Contributions to our Knowledge of the Meteorology of the Antarctic Regions. This was a discussion, according to date and locality, of the materials contained in the logs of H.M.S. *Erebus* and *Terror*, in 1840-43, and threw much additional light on the meteorological conditions of that region of the globe.
0. 20. Charts of Meteorological Data for square 3, Lat. 0°—10° N., Long. 20°—30° W., and Remarks to accompany the Monthly Charts, 319 pp.

The Charts show the means for all the elements for 2° Squares, and consequently the best routes across the Equator in each month and the remarks contain extracts relating to currents, clouds, sea temperature, specific gravity, wind, weather, natural history, &c.

In an Appendix is given a Discussion of Four-hourly means of the Barometer, and Air and Sea Temperature for each Month and for the Year in the Northern and Southern Halves of the Square, from which have been calculated the diurnal range corrections for the district.

This is the most elaborate paper ever published for any portion of the ocean, and the large relative proportion of labour bestowed on the district is justified by the considerations that the amount of material existing for it is quite exceptional, and that it lies on the high road between the North and South Atlantic, and is the meeting place of the two trade winds.

The meteorologist thus finds the materials for a study of the conditions of wind, ocean currents, weather, &c., in a region where two great currents of air are always meeting, with information as to the diurnal march of pressure and temperature in the region of the Equator and at sea; while the sailor finds, in the monthly charts, diagrams of what he may expect to encounter on his passage through

the Square at any season, and in the text containing the explanations he finds a discussion of the entire mass of information, and, as a final conclusion, advice as to the best route for crossing the Line in each month.

The public will, however, be in a much better position to judge of the work of the Office when the charts, &c., now in the press, for the nine squares (Lat. 10° S.— 20° N., Long. 10° — 40° W.) of which Square 8 forms the centre, are published. In these charts, as dealing with a larger area and stretching from shore to shore of the Atlantic, are given not only charts of the same character as those above described (though for larger areas, owing to comparative deficiency of material) but also diagrams showing the direction of wind in connexion with atmospherical pressure and temperature, and of ocean currents with sea temperature.

There is also given a tabular statement contrasting the specific gravity of the sea in the easterly [going] or "Guinea" current and in the westerly currents due to each trade wind.

In the Remarks copious quotations are made from the Logs in relation to the various phenomena which come under the seaman's observations, such as the weather, the wind, the motion of the clouds in relation to the lower wind, the direction of the swell, the colour and luminosity of the sea, and the current rips; as well as information relating to the birds, fish, and insects that are met with, and the variation from month to month of the localities in which they are seen, and also appearances of submarine volcanic action in certain localities.

By these investigations, it is believed that important light has been thrown on several subjects of general as well as of special interest.

1. As to the tendency of the wind blowing along a coast line to draw round a cape.
2. As to the relation of the surface temperature and the currents of the sea near the equator to the westerly gales of high northern and southern latitudes in their respective winters; as to the dipping of a cold current under a warm one, and the variation with the seasons in the amount of easterly current near the Equator.
3. As to a probable relation between the well-known rollers of Ascension and St. Helena, and the winter gales of the North Atlantic, and a corresponding relation of the rollers on the west coast of Africa to the winter gales of high southern latitudes.
4. As to the remarkable difference in direction of the wind in December on opposite sides of the Cape Verde Islands, being *easterly* to the westward and *north-north-east* to the eastward of them.

5. As to the remarkable unsteadiness and gustiness of the north-east trade with a clear sky in Square 40 (Lat. 10° — 20° N., Long. 30° — 40° W.) in certain months.
6. As to the difference between the wind and weather of Square 303 (Lat. 0° — 10° S., Long. 30° — 40° W.), off Cape St. Roque, and its neighbourhood, and those of the Squares lying to the eastward of that point, more especially in regard of the fact that in certain months the wind in Square 303, during the squalls which frequently occur, constantly changes between south-east and south-south-west in such a way that the seaman finds very great difficulty in working to the southward if he approaches too near the Brazilian coast.
7. As to the relation of the upper currents of the atmosphere (indicated by cloud motion) to the lower winds—*e.g.*, how the equatorial margin of one Trade appears to rise above the edge of the other Trade, how the upper clouds move from the north-east over the south-west monsoon on the coast of Africa, and how sometimes clouds move from south-east, the sky looking very heavy towards that quarter, while the surface wind is steady from south-west.
8. As to the relation between heavy dew and sea temperature in some parts and at certain seasons, and the connexion between mist (haze) and African dust.
9. The diagrams give a picture of Maury's "wedge-shaped doldrums," which any sailor can understand, and the remarks show the weather experienced in them.

In these discussions the object of the Meteorological Office has been to determine the meteorological statistics of limited portions of the ocean in each separate month by means of results obtained by discussion of original observations extracted from the logs in the Office.

The scope of these publications is consequently different from that of the charts published by the Admiralty, which aim at giving a general view of what may be expected at each season (three monthly period) over the Atlantic Ocean, as in the "Pilot" Charts, or the whole navigable globe, as in the "Wind and Current" Charts.

Of the two investigations in question, Capt. Toynbee has given popular accounts in papers read before the United Service Institution (in 1873), and before the British Association (in 1875) respectively.

The Office having thus completed the examination of the district close to the Equator in the Atlantic Ocean, about the most important and interesting to the navigator and meteorologist of any region in the world, has commenced the investigation of the meteorology of another great district lying on the high road between Europe and the Indian and Australian

seas, that of the Cape of Good Hope, which will be prosecuted in due course; the question of the best method of dealing with that district being under consideration.

Another inquiry of considerable interest, of the same nature as that noted as O. 18, is being instituted into the wind and weather of the North Atlantic during the month of August, 1873. For this the Office has obtained the loan of 280 logs, as will be mentioned later on.

While thus working at its own materials, the Office has not been neglectful of foreign publications of value bearing on Ocean Meteorology.

Three of these have been specially published, in addition to the reproduction of the Dutch Sea-Temperature Observations for the Atlantic, which have been already mentioned.

These three are :—

- N. O. 4. Routes for Steamers from Aden to the Straits of Sunda and back. Translated from a paper by Lieut. J. E. Cornelissen, of the Royal Meteorological Institute, Utrecht.
- N. O. 5. On the winds, &c., of the North Atlantic along the Tracts of Steamers between Europe and America. Translated from a paper by Herr von Freeden, of the Deutsche Seewarte, Hamburg.
- N. O. 7. Notes on the Form of Cyclones in the Southern Indian Ocean. Reprint of a paper by C. Meldrum, M.A., F.R.A.S., Secretary of the Meteorological Society of the Mauritius.

With reference to the Recommendations contained in the Report of the Committee of Inquiry (1866) in relation to the subject of Ocean Meteorology (p. 15 of their Report) it may be said :—

- a. As regards the works and discussions of observations now in progress. Recommendations have been carried out in principle, but with such variations in detail as appeared necessary.
- b. As regards the collection of further observations. Recommendations have been carried out as closely as it was found feasible to do so.
- c. As regards the method of extracting the observations. The plan of loose cards suggested was tried for a certain time but was subsequently given up for another (described in the Report of the Meteorological Committee for 1867, pp. 8 and 60) which experience showed to be preferable.
- d. As regards the method of discussing and tabulating the results. These recommendations have not been fully carried out; on the one hand the work has been conducted to a much

of observations when extracted.

greater degree of minuteness and over more limited areas than was contemplated in the Report, such a plan being considered to afford results of a more valuable character in the interests of navigation.

On the other hand, with every desire to carry out the recommendations of the Report, it has not been found practicable to *weight* the observations, and consequently to assign *the degree of probable precision* to the results.

e. As regards the publication of meteorological results.

The recommendations have been carried out in principle but not to the letter. The publications of the Office have been more methodical than those criticised in the Report.

f. As regards the publication of other results useful to navigation.

The recommendations as regards communication of hydrographical notices to the Admiralty have been fully carried out. The Report, however, did not apparently contemplate the publication of any data in the form of charts by the Meteorological Office; it was, however, considered by the Meteorological Committee that for certain purposes, as indicated by the foregoing statement, the form of a chart was preferable to ordinary letter-press.

II.—WEATHER TELEGRAPHY.

The first action prior to the resumption of the issue of storm warnings was the inspection of the stations.

This has been annually carried out ever since. Much that was objectionable has been gradually improved, and at present 16 out of the 29 stations are provided with the Stevenson's thermometer screen.

Observers have been changed from time to time, so that at present only 12 are telegraph clerks, and all are distinctly and immediately responsible to the Office.

The Office may fairly claim for its service a higher degree of scientific accuracy and completeness than exists in any *at present* in operation in Europe. It must always be remembered that, as a rule, telegraphic stations are not likely to be good stations for general climatology, the

conditions which determine the choice of locality being widely different in the two cases. It seems therefore less incumbent on the Office to publish means for temperature, &c., for these stations than would appear to have been held by some authorities, to judge from the evidence on the subject laid before the recent Science Commission.

A difficulty in dealing with Weather Telegraphy is to be found in the frequency of telegraphic errors, which renders any absolute dependence on figures received by telegraph impossible. Some idea of the extent to which this evil affects the scientific prosecution of weather study and interferes with the formation of correct views of the essential facts with the promptitude that is required for the practical application of the deduced results—the issue of warnings to the coasts—may be gathered from the fact that in the case of one single station, Oxford, 49 errors were detected (on receipt of the original MS. messages) in the space of 18 months, which were all proved to be due to inaccurate transmission, and were in addition to a considerable number which had been discovered at first inspection of the telegrams (owing to the glaring discrepancy of the reports from those of adjacent stations), and had been corrected by repetition of the message.

This number gives about 32 errors per annum, so that on this hypothesis there would be 32×29 or 928 errors from British stations coming in every year, which it is apparently impossible to detect by simple inspection of the telegrams.

Of errors in barometrical and thermometrical readings as received by telegraph and suspected from their discrepancy *inter se*, the Office discovers more than 1,000 every year, frequently eliciting a correction by repetition of the telegram and correspondence with the observers.

The following memorandum shows the present condition of the Weather Service:—

A COMPARISON of the "DAILY WEATHER REPORT," as it appeared at the time of the REPORT of the COMMITTEE of INQUIRY in 1866, with the same REPORT as now published.

CONTENTS.

1866.	1875.
1.—REPORTS GIVEN, FOR 8 A.M., FROM 20 STATIONS.	1.—REPORTS GIVEN, FOR 8 A.M., FROM 51 STATIONS.
16 in the United Kingdom. 4 on the Continent. Countries represented being,— British Isles, exclusive of the Shet- lands, Hebrides, and Scilly. France and Holland.	29 in the United Kingdom. 22 on the Continent. Countries represented being— British Isles, including the Shet- lands, Hebrides, and Scilly. France, Holland, North Germany Denmark, Norway, Sweden.

1866.

2.—NATURE OF INFORMATION GIVEN.

A.—*Tabular Matter.*

For 8 a.m. :—

Barometer.

Dry bulb thermometer.

Wind.

Weather.

Sea disturbance.

For past 24 hours :—

Extreme wind.

General weather.

Rainfall.

B.—*Written Matter.*

Explanation of table.

Remarks.

Forecasts, for two days.

C.—*Graphic Representations.*

Nil.

1875.

2.—NATURE OF INFORMATION GIVEN.

A.—*Tabular Matter.*

For 8 a.m. :—

Barometer, and change in past 24 hours.

Dry bulb thermometer do. do

Wet bulb.

Wind.

Weather.

Sea disturbance.

For past 24 hours :—

Maximum temperature in shade.

Minimum do. do.

Rainfall.

For 6 p.m. on previous day (44 stations) :—

Barometer.

Dry bulb thermometer.

Wind.

Weather.

For 2 p.m. on previous day (9 stations) :—

Barometer.

Dry bulb thermometer.

Wet do. do.

Wind.

Weather.

Sea disturbance.

B.—*Written Matter.*

Explanation of table.

Remarks.

C.—*Graphic Representations.*

Four small charts of Western Europe, showing for 8 a.m. :—

1. The distribution of pressure, with notes as to the changes which have occurred in the different localities since the previous morning.
2. Similar information as to the air temperature in the shade.
3. The prevalent winds; the sea disturbance (when rough or high); and the portion of our coasts (if any) which has been warned.
4. The weather at each station; and the regions in which a measurable quantity of rain has fallen in the past 24 hours.

When the fall at any station has been heavy (i.e., more than 0.5 in.), the amount is entered in figures (to the nearest tenth of an inch) close to the position of the station at which it has been measured.

1866.	1875.
<p>D.—<i>Corrections and Additions.</i> Nil.</p> <p>E.—<i>Weekly Summary.</i> Nil.</p> <p>3.—<i>Issue.</i> A very few copies used to be issued, viz., to certain newspapers, and one or two subscribers.</p>	<p>D.—<i>Corrections and Additions.</i> At the end of each month a sheet is published containing the corrections (when obtainable) for all the errors which have been detected throughout the month, together with copies of all returns which have been received too late for insertion in their proper places.</p> <p>E.—<i>Weekly Summary.</i> A summary of the weather over North-Western Europe is published each week, giving a brief resumé of the conditions observed on each day, and a general summary for the whole week, calling attention to the more general changes reported.</p> <p>3.—<i>Issue.</i> In addition to about 10 written copies (for 2nd edition of <i>Times</i> and some other evening papers, and one or two subscribers), 595 lithographed reports are printed daily.</p>
	<p>Of these about— 525 copies are issued daily. 6 do. do. weekly. 8 do. do. monthly. 16 do. do. half-yearly.</p> <p>Of those issued daily and weekly, about 300 are issued to subscribers, and the remainder are sent free to Public Offices or for exhibition at seaports, or in return for observations from volunteer observers.</p>

It should also be remarked that since the 1st of April, 1875, Daily Weather Charts have appeared in the *Times* and other newspapers. The form of these charts and the method of producing them in time for publication were first initiated by a member of the Committee.

Since January 1, 1876, arrangements have been made by which a chart for 6 p.m. is supplied to the *Times* at the expense of that journal.

As regards actual work effected in this Department, the Office may point to the following papers:—

N. O. 1. A Paper by Mr. Scott confirming the universal relation between the direction and force of the wind and the differences in barometrical readings, which had been already propounded by Professor Buys Ballot. This paper tended to establish the value of gradients for the purposes of weather study.

- N. O. 2. A Paper by Captain Toynbee on the curves of the Meteorological Observations taken on board the steamers running between Europe and America, showing that as on their voyages outward they meet, and on their homeward route they run with, cyclonic systems of wind which are crossing the Atlantic, the succession of the phenomena is much more rapid in the former than in the latter case. In fact, in some of the homeward runs the barometer is found *to rise when the wind is southerly*, thus showing that the ship is outstripping the disturbance.
- N. O. 8. Also by Capt. Toynbee, shows by a number of instances the value of isobaric curves for the purposes of weather study, and also draws the attention of sailors to the fact that the tack on which they are from time to time (that is the direction in which they are sailing with regard to the wind) affects very materially the rate of the changes that are taking place in the indications of the meteorological instruments, the barometer falling less rapidly, or even rising, when they are on the starboard tack (that is with the wind on the right), and the converse when they are on the port tack, in the Northern Hemisphere.
0. 13. Also by Capt. Toynbee, was undertaken in order to throw light on the storm in which the *City of Boston* is supposed to have foundered. It is the most elaborate discussion of Atlantic weather which has appeared, and it shows, *inter alia*, how incomplete the materials are, and must be, for any synoptic weather charts extending over a wide stretch of ocean. It illustrates the generation of the Atlantic winter gales over the warm water area on the prolongation of the Gulf Stream, and proves that the centres of disturbances in some cases move to the east or north-east, at a rate exceeding 30 miles an hour, a fact which is confirmed by the records of the self-recording observatories in these islands, and by the general results of the observations made over the whole of Northern Europe.

In order to carry out the same method of investigation over a more extensive field, the Office has undertaken the examination of the weather of the Atlantic for the entire month of August, 1873, when a very severe cyclonic storm swept along the American coast and did enormous damage in Nova Scotia. It is hoped that light will be thrown on the actual formation of, and the subsequent modifications in, this serious storm, so that some attempt may be made to solve the vexed problem of the precise direction of the motion of the air in cyclones in reference to

the position of the centre of the disturbance. The Office has appealed to the owners of all British vessels at sea in the Atlantic during the month in question, and has met with a very satisfactory response, having received no less than 280 logs; a larger number than has ever before been available for such an inquiry.

The charge of the issue of Storm Warnings, &c., has necessarily been wholly confided by the Committee to the Director of the Office, who, in reply to our inquiry how far the principles by which he is guided admit of being formulated, has furnished us with the following remarks :—

“ The chief of these principles, which are only announced with very great diffidence, as being liable to material modification with the growth of experience, are as follows :—

“ I. The *Law known as Buys Ballot's*, which is simply a general application of the Law of Storms announced by Redfield and Reid.

“ The intelligent application of this principle to wind motion, even on the most extensive scale, has been the chief point in which modern meteorology offers a contrast to prior investigations into the science.

“ This law gives not only the direction of the wind, but also its force, which is measured with more or less accuracy by means of gradients. That it is not absolutely true in all cases and conditions is more than probable, although precise statements on this subject are not accessible as yet.

“ As regards Direction, the indraught of wind across the isobars in front of an advancing storm is indisputable, as is the effect of land in modifying the motion of the air.

“ As regards Force, it is clear that the same gradient does not accompany the same force of wind from all points. A further proof of this statement is to be found in a fact which has been elicited by the investigations into the meteorology of the sea, that for the same force of wind the gradient is less in the S.E. than in the N.E. Trade.

“ II. The *mutual Relation of areas of low and of high Barometrical Pressure*, the former being to a great extent regulated as to their motion by the latter, and skirting them on their western, northern and eastern sides, at least, so that when we have an area of high pressure situated over a portion of these islands we can form a good idea of the probable direction of motion of cyclones in our neighbourhood, *e.g.*, the existence of an anticyclone over Ireland is accompanied by the advance of cyclonic disturbances south

wards over the Baltic or North Sea, causing northerly gales on the east coast of England.

"The above principle is manifestly incomplete, inasmuch as it takes no account of the rarity of any westward motion in the cyclones. This latter circumstance, however, appears to be a local peculiarity, and it is probable that if the weather were studied over a wider area, as in the synoptic charts of Capt. Hoffmeyer, or those projected, but not yet carried out, by the United States Signal Office, light would be thrown upon it. It is certain that a motion westward does sometimes occur even over these islands, as well as in lower latitudes, as *e.g.*, over Turkey-in-Asia from Bagdad to Salonika, Nov. 3-6, 1869.

"The appearance of secondary cyclones in connection with larger disturbances of the same nature is gradually attracting more and more attention. These systems are imperfectly developed, inasmuch as, generally speaking, they exhibit no easterly winds of much force, manifesting themselves on the southern side of their primaries, and intensifying the violence of the westerly winds which blow under such circumstances.

"It must be admitted that, not unfrequently, the arrival of one of these satellite depressions, in advance of a more serious storm, has enabled the Office to give timely warning of the latter.

"The comparative rarity of the easterly winds in our cyclonic storms is probably traceable to the constant existence of an area of deficient pressure near Iceland, which renders the formation of steep gradients for easterly winds an unusual phenomenon.

"There appear to be some indications of principles by which we can recognise whether or not a cyclonic disturbance is speedily to be succeeded by another.

"If, after the centre of a depression has passed over us, the shift of wind and fall of temperature causes a great clearness of the air, intense radiation occurs at night, the thermometer on the grass falling 10° to 14° below that in the shade, 4 feet above the ground. Under such circumstances it has been noticed that the advent of a new depression is imminent. When, however, the series of successive depressions has ceased for a while, the weather clears much less rapidly and radiation is not nearly so marked.

"On the whole thus much may be affirmed that it is to the general conditions of atmospherical pressure *over as large an area as possible*, that we are to look for an insight into the probable changes which are likely to ensue. To this subject I shall shortly recur.

"III. *Temperature.*—As regards the relation of this element to atmo-

spherical disturbance there are no definite principles which can be said to be generally admitted as true. This may be gathered from the almost total silence on this subject on the part of those who replied to the Circular of the Leipzig Storm-Warning Committee in 1872.

“ Thus much may, however, be said :—

“ A great contrast of temperature over a limited area, or, so to speak, a great thermometric gradient, being an indication of serious atmospherical disturbance, is a precursor or concomitant of a storm. This fact has been clearly pointed out by Dove, but more recent evidence on the same head is to be found in the circumstance that for the five days, January 26-30, 1870, the mean of the temperatures at 8 a.m. at London and Valencia differed 16° , being 28° and 44° respectively, a heavy southerly gale blowing all the time over Ireland. A more recent instance in which a remarkable contrast of temperature immediately preceded a very serious storm, was on the 13th of November, 1875 when the reading at Scilly was 57° , and at Wick 21° . These figures give the very large difference of 36° . The gale of Sunday, November 14th, with its accompanying high tide, will be fresh in the memory of all.

“ Another mode of utilizing temperature in the forecasting of storm is to be found in the long-established fact that an abnormally high temperature, close stuffy weather, frequently precedes a storm. This principle has not been reduced to numerical measure as yet.

“ IV. *Vapour Tension and Rainfall.*—Very much weight is attached by several meteorologists to the indications obtainable from these elements, as Mohn and Loomis consider that their disturbance and intensity determine the direction and velocity of motion of cyclones, and that even the very existence of a cyclonic disturbance depends on the presence of aqueous vapour in abundance.

“ For the area of our storm-warning system this indication is necessarily of minor value, inasmuch as our district is so intersected by water that no portion of it will show such contrasts in regard of vapour tension as subsist in continental stations.

“ V. *Sea Disturbance.*—This is at times a most valuable help towards gaining a knowledge of coming storms, but it is very untrustworthy. The sea disturbance, being caused by the wind, is propagated in the direction in which that wind is *blowing*, not in the direction in which it is *advancing*. Thus a very heavy sea may roll in on our coast without any gale reaching them, and conversely heavy gales, even westerly gales, like that of November 22, 1872, may come on, without any premonition in the way of a ground swell.

“The distance to which waves may be propagated is indicated by what has already been mentioned as probable, that the ‘rollers’ of Ascension and St. Helena may be due to N.W. gales in the North Atlantic.

“VI. *Local Signs*.—These are really among the most important indications of coming change, but practically they can scarcely be utilized by us. They cannot be reduced to rule, and they depend almost entirely on personal experience. It is impossible in a telegram to convey the entire line of reasoning which leads one, in the absence of instruments, to know that a storm is impending. The character, elevation, and motion of clouds ; the colour of the sky ; the clearness, or the contrary, of the air ; the appearance of the Aurora, and numerous other signs, are well known to every one who studies weather, and from these helps the cabinet meteorologist is entirely debarred. He is like a physician dealing with a case by correspondence without the chance of a personal interview with his patient ; for what can a resident in an inland town like London, on any given day, know of the look of the weather on the sea coast on the same day.

“If, in conclusion, I were asked how our weather service could be most directly improved, on the supposition that larger means were available for its prosecution, I should say—

“A. The supply of cheap self-recording instruments to our principal stations, so that the reporters should be able to furnish intelligence as to the changes which have taken place immediately previous to the epoch for which the report is framed.

“The erection at a number of well exposed outlying stations of the automatic signalling anemometers, described in the Report of the British Association for 1874, p. 37, in order to warn the nearest telegraphic stations of the fact that the wind has reached a given velocity—say, 30 miles an hour. Want of funds has hitherto prevented the carrying out of this plan.

“B. Additional stations at well selected points on our west coast, as at Mullaghmore, on Donegal Bay, and at high levels, as at Settle, in Yorkshire.

“The former especially to give more accurate indications of wind, which from our present stations is often necessarily incorrect, owing to the precipitous character of our western coasts, which affects the direction and force of the wind. The latter to furnish means for a study of the differences of atmospherical conditions in a vertical direction, which has yielded very valuable results whenever it has been prosecuted.

- “ C. Additional reports daily. This is a most pressing want ; it has been partially met by the enterprise of the public press ; *The Times* having begun (Jan. 1876) to bear the expense of an evening message from some stations.
- “ D. Improved accuracy in transmission of the reports. This is, I fear, hopeless !
- “ E. Extension of the area covered by our reports. This raises the question of international exchanges, and in this particular it must be remembered that stations are not of equal value, for a report from an outlying post, as Valentia or Sumburgh Head, is worth to the continental meteorologists many times more than a report from a continental station is to us.
- “ The extension of our system westwards, were it possible, would be of incalculable value, but America and even Newfoundland are too distant for us to reason with any degree of certainty on what the changes taking place there may portend to us.
- “ Reports from the Azores, if supported by others from Spain and Portugal, would be of value ; but they would require confirmation. At least two simultaneous reports from independent stations in that group of islands would be required, in order to afford means for checking doubtful statements or errors in telegraphy.
- “ F. An increase of the staff of the Office.
- “ To summarise. More information from existing stations, a large extension of our area of observation, and a reinforcement of the staff for weather study, are the chief requirements of our telegraphic system at present.”

In the matter of the “ Recommendations on the subject of Weather Telegraphy, Daily Forecasts and Storm Warning, and upon observations of Weather within or affecting the British Isles,” made by the Committee of Inquiry (1866) it may be said that the progress of this department of meteorology since 1866, has been so considerable, that the importance of several of the Recommendations has been materially modified by recent experience. The Office has carried out the recommendations in principle as regards the development of the observing system, the issue of storm warnings, and the discontinuance of weather forecasts, and as to the checking of the warnings. It has not, however, for reasons which will be stated hereafter, published a series of maxims, nor has it been found possible, with the present staff, to analyse strictly the principles on which the issue of warnings, &c., has been carried out from day to day.

The staff has been quite insufficient to cope with the serious discussion of the weather charts, which are daily accumulating.

The Office has co-operated readily with the United States Signal Office in its project for synchronous observations over the whole globe.

III.—LAND METEOROLOGY OF THE BRITISH ISLANDS.

This branch of the Office has been carried out in accordance with the plan sketched out in the letter from the President and Council of the Royal Society to the Board of Trade, of June 15, 1865, approved by the Committee of Inquiry (1866), and sanctioned generally by the Treasury in a letter to the Board of Trade, dated November 30, 1866. The number of stations originally proposed was six, with possibly two additional points of observation, situated in the south-west and in the north-west of Ireland, respectively. The six stations specified were accepted, and have been in continual operation until now. The Treasury did not sanction the insertion on the estimates of the full sum proposed by the Meteorological Committee for the year 1867-8, and accordingly the Committee at first determined to defer the establishment of the station at Aberdeen, in consideration of the greater importance of records from Valencia. At the request of the authorities at Aberdeen, conveyed through the Duke of Richmond, Chancellor of that University, the Committee resolved to reconsider their proposal, and ultimately Aberdeen was included in the list of places fitted out with self-recording instruments.

The choice of the stations was guided by the fact of the existence in each locality, except Valencia, of some scientific body to whom the instruments could be entrusted. This involved the necessity of placing the instruments in the best available positions on the premises of the respective institutions, the funds available being totally inadequate for the erection of special structures for the reception of the instruments, or the maintenance of special observing establishments. Hence have arisen the defects in arrangements as concerns temperature in regard of elevation above the ground at Falmouth and Aberdeen, and to a less degree at Valencia, and as to proximity to buildings in all the observatories. In respect of the four other observatories, not above named, there is no doubt the thermometrical indications do afford as thoroughly satisfactory a record of temperature as is required; this point having been proved by direct experiments by Dr. Stewart, for Kew, and by the Rev. Dr. Robinson, for Armagh.

Absolute uniformity in conditions of exposure is totally unattainable, as was fully recognised at the Vienna Meteorological Congress in 1873.

The observatories were set in action in 1868, and with the year 1869 the publication of the Quarterly Weather Report was commenced. This was projected in order to overcome the difficulty, universally recognised, of the absence of uniformity in epochs of observations in the different countries. A reproduction of the automatic curves was considered to be of paramount importance in order that the records at observatories should be independent of any choice of hours for observation or of any

scales, and the value of such a reproduction was strongly urged by the Committee of Inquiry (1866).

The execution of the plates was rendered possible by the invention of certain special instruments and processes for which the Office is indebted to Mr. F. Galton and Mr. De La Rue, and which are in constant use, as explained in the several Annual Reports of the Office.

The curves were at first reproduced by the lithographic process, but of late years that of copper-plate printing has been introduced.

The degree of accuracy aimed at is 0·2 in. for the barometer, and 0°·5 for the thermometer, and the plates furnish a continuous record of—

Pressure.

Temperature (Dry and Wet Bulb).

Vapour Tension.

Wind (Direction and Hourly Velocity).

Rain (Hourly Amount).

It may be asserted, without fear of contradiction, that no record of a completeness and accuracy at all approaching that attained by the plates in question has yet been attempted in any other country, and (that moreover the Meteorological Office is the only Meteorological establishment which itself publishes the materials for testing the accuracy of its published numerical values.

In the matter of accuracy many important advances have been made since 1867, owing to the growth of experience, and the methods of treatment of the records have much improved.

The text of the Quarterly Weather Report has been a consecutive journal of the weather, and the tables have given the five-day means of the barometer and the dry and wet thermometer, from hourly measurements of the curves, together with monthly means of the same elements, and of vapour tension and deduced dry air pressure, as well as the extreme readings of the barometer and dry thermometer.

A request having been made for the publication of the actual hourly readings of the measurements of the curves, this has been complied with. These volumes have been issued since January, 1874, and distributed to the principal libraries at home and abroad.

The preparation of the plates and tables above mentioned occupies nearly the entire time of the available staff of the Office, so that no present prospect exists of a systematic discussion of the returns so as to calculate the periodical variations of the different elements. This for the seven observatories will be a heavy task, and it is for consideration whether some special steps should not be taken for effecting it, as the first five yearly period over which the observations extended closed with

the past year, and it was held by the Vienna Congress that such calculations should be effected for "lustra" (periods of five years) ending with years which according to our present calendar are multiples of 5.

The Quarterly Weather Report has contained in addition various appendices which are as follows :—

1869. Notes on easterly gales.

1870. Mean barometrical pressure at telegraphic reporting stations.

Rainfall at telegraphic reporting stations.

A translation of Bessel's Paper on the Determination of the Law of a Periodical Phenomenon.

1871. A discussion of the anemometrical results for Sandwick Manse, Orkney, 1863-68.

Mean monthly rainfall at certain stations in the United Kingdom.

Constants for Bessel's Formula for the Observatories for 1869-70.

1872. Discussion of the anemometrical results at Bermuda, 1859-68.

1873. Rainfall of the London district for 60 years, 1816-1872, by G. Dines, F.M.S.

Results of observations taken at certain stations of the Second Order for the year 1873.

The Appendix last mentioned leads to an important subject calling for remark; the study of the climatal conditions of these islands by means of returns from stations auxiliary to the self-recording observatories.

Such stations have been gradually organised, and in January, 1873, the Committee were able to inform the Registrar-General, in reply to an inquiry made by him, that if the Office were called upon to furnish materials to him for his statistical returns it was in a position to do so.

Of late the list of stations in connection with the Office has received an important reinforcement by the conclusion of an arrangement by which the Meteorological Society (of London) supplies returns from some of its stations, in return for a small annual grant to defray the expense of copying.

That society has recently organised a system of stations with much care, which exhibit a satisfactory agreement as to the character of the instruments and the conditions under which all the observations are taken.

This co-operation of the Society, and of a considerable number of private observers throughout the country who have volunteered to supply their schedules of observations gratis, renders it possible for the Office to take its part in the general international scheme of publication of returns from eye observations proposed by the Permanent Committee of the Vienna Congress, in order to facilitate climatological inquiries.

The publication of these returns, demanded for 15 stations in the United Kingdom, has been commenced for England and Ireland. As for Scotland, it is hoped that the Scottish Meteorological Society will supply their quota of materials for this international object.

The Committee have felt it their duty to afford every facility to their Director to attend, as their representative, the meetings of the various Meteorological Congresses which have been held of late years, and moreover have entertained the members of the Conference on Maritime Meteorology, which was held at their Office in August, 1874.

The Office is therefore at present fulfilling all that is called for from this country for international purposes, as defined by the Permanent Committee of the Vienna Congress, and there can be no doubt that the information now coming in is, as regards accuracy, fully equal, if not superior, to any published from a similar system of stations in any country.

Further may be mentioned the fact of the recent publication by the Office, at the request of the Government, of a volume entitled "Instructions in the Use of Meteorological Instruments," which has been compiled with the assistance of several meteorologists unconnected with the Office.

The Scottish Society have sought to obtain a grant in aid of their general objects from the Parliamentary vote; but the Committee have considered that as they are only agents for directing the application of the fund at their disposal, they have no authority to make grants to be dealt with at the discretion of other bodies, and that their action is restricted by the conditions that the objects to which it is directed shall be among those for which the grant is made, and that the expenditure shall take place in a manner that admits of their exercising a control over its objects and results.

Before leaving this branch of the subject, the Committee would remark that their operations would have been seriously crippled in the year 1871, when the British Association withdrew its annual subsidy to Kew Observatory, the central observatory of their system, had not Mr. Gassiot, one of their own body, come forward and most munificently placed in the hands of the Royal Society a sum of £10,000 for the endowment of the establishment, thereby affording ample funds for the continuance of the observatory in full activity.

In conclusion the Committee would make a few general remarks on the principles that have guided them in organizing the Meteorological Office and controlling its operations.

They have considered it to be their duty to give general effect to the recommendations of the Committee of 1866, and to establish and carry on for a considerable length of time, with the least possible amount of

change, a well arranged and uniform system of observation and of publication, being satisfied that continuity of method is one of the most essential elements of success in dealing with complicated physical phenomena.

The Committee on their first appointment laid down with much deliberation the course to be pursued by the Office, and gave considerable attention to the removal of the numerous difficulties which necessarily occurred in the establishment of so much that was novel, especially in connection with the self-recording instruments.

Seeing that the Committee of 1866 had recommended a renewed inquiry into the proceedings of the Office, after three years' trial, and feeling that under any circumstances its constitution was only provisional, the Committee have aimed at leaving the principal officers employed in the duties of the department as little fettered as possible as to the precise manner in which details were conducted, looking rather to securing satisfactory results of the work, and to exercising that strict financial control over the application of the funds placed at their command which their duty to the Royal Society and the Government required of them.

They have also felt that in the existing condition of meteorological knowledge it would have been not only presumptuous on their part, but positively mischievous, to have attempted to assume a position of authority in enunciating new doctrines of their own, or in criticising the opinions of others; and that their power of producing useful results would have been seriously impaired if they had in any way departed from the purely neutral attitude of accumulating a faithful record of facts destined to furnish materials for scientific discussion.

Although there exists a large quantity both of published and unpublished data in the possession of the Office which places their staff in an exceptional position for conducting elaborate investigations into the conditions of the weather; nevertheless, the Committee have found it impossible to provide for the adequate carrying on of such investigations by means of their own staff; the time of their chief executive officers being so much occupied by the heavy current business of the Office as to leave them no leisure for the purpose, nor have the Committee been able to assign out of the funds at their disposal enough to secure additional assistance of a proper scientific character. If they had diverted any of these funds to purely scientific discussions it would have crippled other parts of their work, which appeared to them, under the existing conditions and for the time being to be still more important and to be, in a measure, obligatory on them.

It will readily be understood that the Committee holding such views makes no claim to having given an independent impetus to the progress

of any special branch of the meteorological science, though they feel satisfied that their operations have in an important manner facilitated the natural development of accurate meteorological conceptions. All conversant with the facts will agree that a very great advance has been made in this respect since the Committee was formed. The Committee will not attempt to distinguish all the various causes that have conduced to this advance, but among them are certainly to be recognised the organization of the system of continuously self-recording observatories and the publication in the Quarterly Weather Reports, with a remarkable degree of accuracy, of a graphical reproduction of the records thus obtained; the constantly increasing attention paid by the officers of the Meteorological Office to the accurate and prompt preparation and distribution of the lithographed Daily Weather Charts; their intelligent study of the facts recorded under their direction, and their cordial co-operation with other bodies interested in similar objects, whether in this country or abroad. The experience gained in the preparation of the Daily Morning Weather Charts has enabled the Office to prepare smaller charts, which are supplied for publication in several daily papers in London and the provinces. This indication that such information is appreciated by the public is further corroborated by the fact that similar Charts containing information for the evening have been asked for and are now furnished by the Office to the *Times*.

The Committee being aware that the Government has entrusted to another body the duty of inquiring how the functions they have performed may best be discharged in the future, they will only permit their remarks to extend beyond a review of the past in three particulars.

First. They look forward with great hope to the effect of increased international co-operation on a large scale, towards which important steps have already been taken at recent Meteorological Congresses. The detached labours of numerous meteorological institutions will thereby be presented in a strictly comparable form, and may readily be combined in synoptic charts or in any other manner into a single whole. They think it is impossible to overstate the importance of measures tending to such a result.

Secondly. They consider it to be a point of much importance, that the meteorological societies and independent observers of this country should be more generally induced to work in unison with an Office maintained by grants from Parliament, so far as their several efforts are directed to the same field of inquiry. Administrative difficulties have hitherto prevented the accomplishment of as much in this direction as could be desired, but the Committee fully recognise that it would be advisable to utilise more completely than has yet been done the energy of independent meteorological societies or individuals, and they believe that

this admits of being effected on conditions that would be suitable and acceptable to them.

Lastly. They feel it necessary to say that for the further advancement of Meteorology, greater attention to its more strictly scientific aspect will in the future be essential. Merely empirical rules, however sound be their foundation, can never become really trustworthy guides of action until the principles that underlie them are established, and the circumstances are appreciated under which deviations from the ordinary course of events arise. It can hardly be disputed that in the course of the past nine years, since the appointment of the Committee, the general progress of the science of Meteorology in this country and abroad has been such that the application to it of exact principles seems to have become not only possible, but requisite; without them the full practical advantage of existing means of observation will not be secured, and it is only by aid of scientific discussion of the facts that these principles are to be ascertained.

They would suggest, as a probable mode of attaining the object they have in view, the application of a portion of any future grant to the preparation of reports, or the carrying out of researches on special subjects connected with Meteorological science by qualified persons to be selected from without and employed independently of the ordinary staff of officers engaged on other duties.

The Committee are only too well aware of the difficulties that are likely to attend the progress of Meteorology as an exact science, but difficulties apparently as great have been overcome in other directions, and perseverance and time will doubtless remove those now in question.

COMMISSIONERS OF WRECK.

WHEN the subject of Courts of Inquiry into Wrecks and Casualties was under consideration by the Royal Commission on Unseaworthy Ships, a scheme was projected by Mr. O'Dowd, Assistant-Solicitor to the Customs, for dividing England into three districts, with a judge and a nautical assessor to each, for the purpose of investigating maritime casualties—the Courts to be Courts of Inquiry only, with an appeal to the Court of Appeal then contemplated, and since instituted, under the Judicature Act—and that in cases of misdemeanour, by master or owner, the judgment of the Court should have the force of a verdict by a coroner's jury. Mr. O'Dowd's scheme was supported by Mr. Hamel, the solicitor to the Customs, with

the addition that the proposed district Courts should deal with complaints of unseaworthiness, and that the Courts might sit at the various Custom Houses. Mr. Hamel further insisted that there was an element of economy in the proposal, and went into details to show that money would be saved by its adoption, while the work of investigating maritime casualties could be more efficiently performed than under the existing system, always premising the persons selected to discharge the duties of district judges to be competent men. The Commissioners did not express a direct opinion upon this proposal. They recorded their belief that Courts of Inquiry, as at present constituted, "do not command general confidence;" that "their method of procedure is dilatory and expensive, and needs amendment;" that "their powers are ill defined, and often cannot be enforced;" but that, nevertheless, these tribunals "have led to many improvements, and have contributed to the greater safety of navigation." "The same tribunals," added the Commissioners, "cannot with advantage be both a Court of Inquiry and a Court of criminal procedure. It appears, therefore, desirable that inquiries in them should be simply inquests into the cause of loss, and that the Board of Trade should have power to institute prosecutions in the ordinary Courts when necessary. Much delay and expense would be avoided by the appointment of a legal officer at the Board of Trade, and an improved system of inquiry will be the best means of guarding against future casualties."—Final Report, pages 7, 8, and 14. So much of this recommendation as relates to the appointment of a solicitor to the Board of Trade, has already been adopted, and some of the most important inquiries ever ordered by the Board of Trade, have been carried out most effectively under that gentleman's auspices. An attempt was also made in the Merchant Shipping Bill introduced last session to separate the inquiry, regarded merely as an inquest, from proceedings against masters and officers for incompetence, neglect, or misconduct. The proposal, of course, went with the Bill of which it formed a part, and has not been introduced in the measure now before Parliament. But it is proposed to increase the efficiency of Courts of Inquiry into Wrecks and Casualties, and the facilities for conducting these investigations by appointing Commissioners of Wreck, whose duty it will be to hold these investigations, with the aid of nautical assessors, at the instance of the Board of Trade. The existing machinery of the law relating to these Courts will otherwise remain undisturbed, so that the services of stipendiary magistrates and the local justices will still be available for these investigations should they be required. The fact that a proposal which, when made, did not appear to impress the Commission or the Government, and had no place in the Bill of last year, should have been made a distinguishing feature of the present Bill, is somewhat surprising. We believe the explanation is to

be found in a state of things of which there has been, as yet, little or no public mention. The two stipendiary magistrates at Greenwich are, we believe, the only magistrates in the Commission for holding Inquiries into Wrecks and Casualties in the Metropolitan district. When the spacious premises acquired by the Board of Trade, in the East India Road, Poplar, had undergone repairs and alterations, making them eminently suited for the purposes of a Court, it was proposed to extend the Commission, so as to have the assistance of additional magistrates for these investigations. But here a difficulty presented itself. The Metropolitan magistrates, as a body, have little spare time, and many of them have not the special experience which would fit them for the conduct of maritime investigations, with satisfaction to themselves, and benefit to the public service. The question was referred to Sir Thomas Henry, as the senior magistrate of the metropolis, and the conclusion arrived at was, we believe, that it would not be expedient to enlarge the Commission, and that whoever are to be entrusted with the conduct of these inquiries, should be persons of special knowledge and experience. The Board of Trade have rightly resolved that the commodious Court at Poplar shall be turned to the proper account, and have inserted a proposal in the Bill for the appointment of Wreck Commissioners, one of whom would, no doubt, take all the cases which now come to London, and many more that will fall within the London district, while the other Commissioners would take the cases arising in more remote localities. The proposal submitted to the Commission by the Assistant-Solicitor to the Customs, was to divide (for the purposes of the new Courts) England and Wales into an eastern, a western, and a southern district, the latter to include London, and the judge stationed in London to take all the cases occurring along the southern range of coast. It is obvious that the creation and assignment of districts is a question altogether subordinate to that of the fitness of the persons who shall be selected to discharge the peculiar duties of Commissioners of Wreck. They will, we presume, be members of the bar, acquainted with maritime law and nautical affairs, and capable of estimating the value of nautical evidence. The great disadvantage of taking inquiries before the local justices is, that, as a rule, they are ignorant of the principles of maritime law, and unable to weigh the value of the evidence; while too frequently they enter upon these investigations with a bias which is, of course, unfavourable to the elucidation of the truth. The stipendiary magistrates—being members of the bar—are generally fairly acquainted with the rules of evidence, but few of them have any acquaintance with nautical affairs, and are compelled in coming to a conclusion upon the evidence to trust implicitly to the nautical assessors. This is not a satisfactory state of things. The assessors are very well and very useful

as advisers of the Court, but they are too frequently, in consequence of the weakness of the magistrate, enabled, and even compelled, to usurp the functions of the judge. This, which has been a defect in these Courts of Inquiry ever since they have been first constituted, can only be cured by the appointment of competent judges by whatever name they may be called. We believe that the proposal in the Bill to create Commissioners of Wreck is now a needful and a wise one, and that, properly carried out, it will prove a very valuable amendment in our law of Merchant Shipping. The importance of these inquiries has of late years increased with the increase of maritime disasters until they have become a public necessity. They are the means of eliciting facts relating to navigation, its dangers, and defects, which might never otherwise be arrived at. But they are capable of being turned to a still better and more useful account. When a thoroughly competent Court has been formed, there will be no difficulty in arranging the mode of procedure and determining other details. These Commissioners of Wreck are to be appointed for the express purpose, as stated in clause 20 of the new Bill, "of rendering investigations into shipping casualties more speedy and effectual," and it is proposed to authorise them, at the request of the Board of Trade, to hold "any formal investigation" into a loss, abandonment, damage, or casualty, under the eighth part of the Merchant Shipping Act, 1854, and for that purpose to have the same jurisdiction and powers as are conferred on two justices, and "all the provisions of the Merchant Shipping Acts, 1854 to 1876, with respect to investigations conducted under the eighth part of the Merchant Shipping Act, 1854, shall apply to investigations held by a Wreck Commissioner." In addition to these powers it is proposed that these Commissioners shall act at the instance of the Board of Trade as Receivers of Wreck to institute examinations with respect to ships which have been in distress, or are stranded or missing. It will be seen, therefore, that it is proposed to combine in the Commissioners to be appointed under the new Bill the jurisdiction which is now lodged in the local justices or stipendiary magistrates, with the functions exercised by Receivers of Wreck in the matter of investigations into maritime casualties. It is clear, therefore, that these are specially important functions, and will demand in those who are called upon to exercise them a special acquaintance with maritime law and nautical affairs. But this conceded, there can be no doubt of the valuable aid which the Commissioners contemplated by this Bill will afford in ascertaining the causes of maritime disasters and throwing light upon dangers to navigation which have hitherto escaped observation. "We attach great importance to these inquiries," said the Royal Commission on Unseaworthy Ships in the Report from which we have already quoted, "as affording the best means of ascertaining on whom the culpability

rests for losses at sea, and we believe that such inquiries followed by the proceedings which we have suggested, would be more conducive to the safety of life at sea than many of the complex and minute regulations which Parliament has heretofore enacted." The proposal in the 20th section of the new Bill, properly carried out, will strengthen in a special manner the machinery for conducting these investigations, and for producing those very important results of which they are capable. It is one which has met with approval as a step in the right direction, and which will, if we are not mistaken, command the assent of Parliament. There is no branch of England's commerce so dear to her as her maritime trade, and she will assuredly not grudge any rational expenditure by which the dangers incident to it may be discovered and obviated.

ENGLAND AND EGYPT.

THERE is little reason to doubt that the recent purchase of Suez Canal shares by the English Government will prove an event of great importance to both countries immediately concerned in the transaction. Whatever may be the direct consequences of the step England has so suddenly and so resolutely taken, it is quite certain that this new acquisition increases to some extent the risk of future complications and enlarges our national liabilities; but at the same time, as a set-off to these drawbacks, it vastly extends our power and influence in the East. And with regard to Egypt, the fact of a foreign country having gained a proprietary footing within her territory cannot fail to have a marked effect upon her future career. As yet, the true significance of the bold stroke of the present English ministry is scarcely realized by the country at large. To the majority of people the purchase of the Canal shares has given unmixed satisfaction. It is pleasant to find ourselves the proprietors of a magnificent work like the Canal, without an effort as it were, and without any unpleasantness having arisen in consequence of the transfer of rights. Coupled with this there is an air of hardihood and daring about the transaction by no means unpleasing to British pride. At the same time the Government may well congratulate themselves that everything has thus far gone satisfactorily. The negotiation was of such an unprecedented nature; that had any serious international difficulties arisen therefrom, there would have been a perfect storm of reproach showered upon them by every pessimist wiseacre in the country. Happily those gloomy prophets who "knew how it would be," after the occurrence of every

untoward event, have this time had no opportunity for airing their well grounded inspirations. The business could not have ended more pleasantly, and we may now safely look forward into the future and inquire what is likely to be the result of our great national investment. We do not mean the financial result, for whether the speculation prove successful or the reverse in a monetary point of view, is a matter of no consequence. For England the Canal possesses its chief importance as a highway to India, and as affecting our international relations with other powers. The question whether the purchase will turn out profitable or not is not worth discussing. We ignore this side of the question in speculating upon the result of our entry upon a new line of Eastern policy.

We do not for one moment mean to impute any deep laid scheme to the present English Government. We have no doubt whatever that the declaration of Lord Derby to the effect that England repudiates the idea of establishing a protectorate over Egypt, and that she merely wishes to establish her right of way through the Canal upon an indisputable basis, sums up the designs of the Government, for the time being, in full. But whether the result of the purchase will eventually be limited to this modest effect is an entirely different matter. The Government were, no doubt, half forced into the investment. The Khedive was so much pressed for money that the shares were bound to go, and that being the case it was certainly to our advantage that England, and not any other country, should become the purchaser. But now that the purchase has been made, it does not follow that England will not find herself gradually drawn into a position very different from that which she at present marks out. The nature of our future relations with Egypt depends chiefly on the ability Egypt displays in taking care of her own interests. She has to apprehend no active aggression from England, but whether she will not, either directly or indirectly, invite aggression is a question fairly open to debate. It requires no very minute examination to reveal the fact that Egypt is already seriously affected by maladies closely resembling those that have so long afflicted the "Sick Man." The latter has certainly been a long time dying; in fact his dissolution has proceeded so slowly that well-wishing friends would fain believe that it will never actually come to pass. They will certainly be doomed to disappointment. The process though slow is sure, and now that their patient has entered the lists with nations of the first rank his decease will be greatly accelerated. For Turkey to maintain a large standing army and a first-class navy upon the worn out system that has hitherto answered to the name of Government within Turkish dominions, is a sheer impossibility. Luxuries like these can be supported only by nations who possess not only some natural

vigour of constitution, but also a body of executive officers upon whose honesty a fair degree of reliance may be placed. But Turkey is blessed with neither of these requisites. Her people and Government are both admirably suited to play the part of a fourth-rate Asiatic power, but when they adopt the style and expenditure of the best administered European nations they are completely out of their depth. The recent repudiation of their liabilities is an unmistakable index to the future. There would seem to be no hope of amendment. Ruin and destruction appear to be approaching the Ottoman Empire with relentless tread, and the final overthrow of Mahommedan power in Europe can be regarded as nothing more than a question of time. In fact there are many deep thinkers who believe that the final disruption will take place just as soon as those nations who now hold the fabric together may please to decide as to the disposal of the *débris*.

If the strictures that may be applied to Turkey with respect to the general administration of her affairs could to any large extent be applied to her dependency upon the banks of the Nile, it would be a question whether Egypt and Turkey might not be placed in the same category. At any rate it would appear that the same course of reckless expenditure has in the past been entered upon in Egypt, though in a somewhat different style. Vast and costly undertakings have, in the past, been carried out by the Egyptian Government, as if that Government had been under the impression that Egypt's resources were boundless as their own imaginations. Because the soil of Egypt is eminently rich and fertile, they seem to have thought that Egypt's capabilities for development were practically unlimited. Something beyond a fruitful soil, and a patient and industrious people, are necessary to constitute a great nation. The ways of Oriental officials, and the defects of Oriental financial administration are evils by no means less tangible than the advantages just named, and until these are remedied it is vain to hope for any radical improvement in the condition of any Oriental nation.

The present Viceroy of Egypt is a ruler of great enterprise, indeed, there is some reason to apprehend that the readiness with which he has, in the past, entered into grand commercial schemes will in the end prove a grave disadvantage to his country. In many respects he occupies the position of a proprietor rather than that of a ruler of his dominions. He is the largest cotton grower in the country; he enjoys a monopoly in the manufacture of sugar; and his private debt amounts to something like £15,000,000. It is a grave question whether it will prove to Egypt's ultimate advantage that the Khedive should have engaged thus largely in commerce. However ardently a ruler may strive for the general prosperity of his subjects there is always a danger that some confusion may arise between national and private interests when he has taken upon

himself to embark as a private trader. As sugar monopolist, for example, the Khedive pays no freight for transporting sugar upon Egyptian railways. That this is unsound and unjust economy, it is scarcely necessary to say. No sane man can doubt that the Khedive has the welfare of his country thoroughly at heart, but the fact that he is the actual proprietor of something like one-fifth of the territory he governs cannot fail to have a deep influence upon his policy. It is not in human nature to remain unbiassed while such gigantic private interests as these are ever pushing themselves forward for consideration. On the other hand, the sagacious energy and activity he has displayed in the administration of Egyptian affairs, together with the extreme readiness he has always shown to profit by European experience, have certainly done much to benefit the country and will do more. If Egypt only possessed a few score of native statesmen of equal talent with the Khedive, she would have little cause to fear. But this is precisely where the grand difficulty appears to lie. The Khedive is in the position of a bold and daring rider, seated upon a thoroughly sound, though irredeemably stubborn horse. For his own part, he is extremely anxious that his country should advance as he knows it is capable of advancing, and he commits many personal sacrifices to secure the end; but, unfortunately, he stands almost alone with his good wishes. In the matter of slavery, for example, he has given practical evidence of the best intentions with regard to its suppression. The expedition under Sir Samuel Baker was fitted out for the sole purpose of striking a blow at the source of the evil,—and with what result? A perusal of the account of the mode in which that somewhat Quixotic attempt was made enables one to form a good estimate of the difficulties the Khedive has to encounter in trying to carry out reforms. The expedition started under the most favourable auspices, neither money nor men having been spared in its formation. Yet, on approaching the scene of action, Sir Samuel Baker found that the officers who had been placed under his orders, and the principal officials of the district through which he had to pass, seemed to be actuated with the sole desire of obstructing his plans. Slaveowners, or interested in the slave trade themselves, it was not likely that they would sympathise with any attempt to suppress an institution of which they had every reason to approve. As a feat of daring pluck on the part of the leader of the expedition this raid upon the slave trade possesses some degree of interest; but the practical effect of the whole business may be said to be *nil*. It, however, affords a good illustration of the kind of passive resistance that at every turn meets the well-intentioned projects of an Oriental reformer. It is utterly impossible for one man to reconstruct a nation. Social and administrative reforms grow but slowly even among Europeans; but when it is a question of

stirring up Moslem lethargy, the difficulties in the way of improvement are immeasurably greater. The system of *corvées* under which the Egyptian peasant is driven off by force to assist at what are supposed to be works of a public nature, but which in reality consist in operations of any kind, from cutting canals to towing a grandee's boat, is itself a kind of serfdom little better than slavery. The Khedive has wisely and nobly stood out and striven to mitigate the practice ; but against the dead-weight of native opinion he can do but little towards effecting a reform. European reformers are accustomed to look somewhat woefully upon the uncompromising spirit in which their suggestions are often met in Europe ; but European conservatism is rank radicalism compared with the unyielding fanaticism of the Old Moslem party. In striving to improve the administration of his country, we must recollect that the Khedive is contending with evils that are literally hydra-headed, and, unfortunately for him and for Egypt, he has to maintain the fight almost single-handed. Not the least of the evils against which he has to make headway is the lack of sympathising native officials. It appears that in Oriental nations nothing is more common than for public officers with salaries equal to four or five hundred pounds per annum to retire from the service with vast fortunes ; and when we bear in mind the low estimate in which Orientals generally have ever held the first principles of such virtues as truth and honesty, it is easy to form an idea of the difficulties that lie in the way of a reformation in such a country. Speaking of Egypt specially, we may mention that the *corvée* system, and the liability to military service, give rise to a feeling of great insecurity on the part of the fellahs, who appear to be a most industrious and frugal class. If in any nation the oppression of the tax-gatherer is great it induces the thrifty peasants to conceal their hard-earned savings, and thus to half nullify the good effect their economy might otherwise have had, and in this way that oppression may therefore be said to possess a double influence for evil.

Again, to speak of Egypt specially, we fear that until a complete change is effected in the administration of her internal affairs, it is morally certain that no real improvement can take place in the condition of the country. The zeal shown by the Khedive may in some respects, indeed, possibly have done quite as much harm as good. It may be sound policy in ordinary cases to spend money freely upon useful public works ; but when it is a question of dealing with a nation like Egypt the case is different. Antiquated fiscal systems are well enough to support the harems and slaves of Oriental despots, but when they have to bear the strain of railways, canals, and armies fitted out in modern style, they are bound to collapse. This is what has come to pass in Turkey, will the same be the result in Egypt ? Is the catastrophe inevitable ? The sale of the Canal shares may or may not be a precursor

of coming doom, and the very means the Khedive has adopted with a view to the salvation of his country, may in the event of other and new speculations hasten calamity. For instance, if report speaks correctly a project is now before the Khedive for laying down a railway into the heart of Africa. The *estimated* cost of the work is £4,000,000, and although in the end such an undertaking may possibly prove useful, yet for many years it could not be anything more than a crushing burden to the country. The revenue of Egypt is at present about £10,540,000; the public debt is something like £60,000,000, and in addition to this there is the floating debt, the amount of which is unknown to us. The interest on the public debt is £7,500,000 or about 30s. per head for the entire population of the country. When we remember that in this country the interest on the public debt to be borne per head of the population is less than 20s., it is easy to form an idea of the load of taxing on Egyptians. Almost the whole of this public debt of £60,000,000 has been contracted since 1869, the date of the Khedive's accession, for in that year the public liabilities of Egypt were less than £3,000,000. That a country whose debt had increased at this tremendous rate during a period of perfect tranquility must have been, but for the turn of policy taken, fast drifting into a state of financial chaos and ruin, it seems impossible to doubt. It has been computed that not one-fourth of the amount exacted from the taxpayers ever reaches the public treasury in many Oriental countries. If it be possible that such a state of affairs were to apply to Egypt we may conclude that the amount actually contributed by the nation would be nearer 20,000,000 than 10,000,000, which would give a rate of about £5 per head of the population: but we have not assumed that more than 30s. per head is paid. If the Khedive continued to enter into expenditure in the belief that Europe will be glad to supply him with money as often as he may take the trouble to ask for it; the day is, we fear, rapidly approaching when he would be undeceived. But there is no fear that he will do so. Of course Mr. Cave will report that all may yet be well, if economy be taken for the watchword, and the whole fiscal and financial systems of the country be thoroughly reformed. This is what we hope for, but the serious question is, unless nine-tenths of Turkish and Egyptian officials are to be sent adrift and their places filled by Europeans, is it impossible that administrative reforms of any importance will ever be effected? The Khedive has entered upon a system of reform and retrenchment; had he not done so, it is patent to everybody that a collapse was inevitable before many years are ended. If such a complete system of retrenchment and reform had not been commenced in good earnest, the question would be "what next"? In that case, which fortunately we may now regard as averted by the reformed policy of the Khedive, it would have remained

only for England to tighten her grasp as the ruin of the country would have surely advanced. It might be that the British Government have no wish to establish a protectorate, but that a protectorate would, failing the reformed policy of the Khedive, have to be established is a moral certainty. And it is equally certain that England could never allow her influence in Egypt to be surpassed by that of any other European power. Although England might have no wish to annex Egypt, annexation would, in the absence of the reforms and retrenchments the Khedive has now fortunately inaugurated, in all probability some day be not only justified but rendered absolutely necessary. In the absence of these reforms England would only have had to stretch out her hands and wait—the Khedive's dominions would have fallen into them like ripe fruit. There would have been no escape from such a termination of the position of affairs, even if escape were desirable.

England has now taken a step from which she cannot possibly withdraw. She has publicly declared her interest in Egypt to be greater than that of any other nation, and she has followed up this declaration by obtaining a foothold in the country that cannot again be relinquished. Every one would deprecate any aggressive attempt to plant the British standard on Egyptian soil. There is a wide-spread belief amongst us that England has quite enough upon her hands, and Englishmen at present strongly disapprove of schemes which may have a tendency to widen our national responsibilities. But, on the other hand, there are conquests and conquests. Acquisitions of territory may be made which may be sources of weakness rather than of strength, whilst there are others which are precisely the reverse.* In a strategical point of view, the importance of the Suez Canal cannot be too highly estimated. Yet, unless England maintain her command of the Canal by means of land force, she might, in time of war, find her main line of communication with India completely cut off. The present Khedive is favourably disposed towards England, but his successors, in the event of a war with Russia, might declare against England. In that event we should find ourselves seriously hampered unless we had possession of the great highway to the East. In a few days the Canal might be blocked by impediments which it would take months to remove, even under the most favourable conditions, and in the meantime Russia might be pouring her armies into India through central Asia. Yet if we were in a position to maintain a permanent force in Egypt all this would be prevented. Other nations would, no doubt, object to the erection of works commanding the Canal, but such a step on our part would not be necessary. With a force of 10,000 men permanently retained in the country, we should be masters of the situation. It would require but a small body of men to prevent any mischief being done to the Canal at the outset, and if it were

found necessary they might speedily be reinforced from England. The political situation has been completely changed by the opening of the Canal. If England had reason twenty years since to be jealous of Russia, and to prop up Turkey with a view to preventing Russian encroachments, she has far more reason to make certain that no European power other than herself shall obtain a footing in Egypt, and the startling question arises whether the main direction of England's Eastern policy should in the future be, not to avoid interference in Egyptian affairs, but to court every opportunity for interference that offers itself.

The above are military considerations, with which the *Nautical* has nothing in common. Apart from military considerations, and from the interests of the north-east part of Africa, known as Egypt, there is something of great importance to us in connection with the northern and central part of that continent.

The recent explorations of Livingstone, Baker, Speke, Grant, and Stanley, have been the means of directing general attention to the Upper Nile districts; and there is every reason to believe that before many years have elapsed colonisation in Central Africa will have commenced from this country. According to the reports of travellers who have explored the country lying around the higher portion of the Nile, the climate in many parts appears to be not at all unhealthy for Europeans, and if this should really prove to be the case it is tolerably certain that another fifty years will see some vast changes in a district, the highest purpose of which at present seems to be the degrading process of producing slaves for Persian harems. In Egypt there is a popular tradition that no aliens shall ever possess the soil, and that alien posterity shall never increase on Egyptian ground; and bearing in mind the nature of the climate in Lower Egypt, the belief is not without foundation as far as Europeans are concerned. In that part of the country permanent colonisation seems as unlikely to take place as it is in India; but it is not at all improbable that, among the districts recently explored, the climate will prove favourable to European life. And if it should turn out—as is by no means unlikely—that coal and iron are to be found among the equatorial highlands, it would be rash to place a limit upon the prosperity that may be in store for Central and Eastern Africa. With careful guidance, such as is now happily commenced, Egypt will be made to spring into new life, and become a highway to that territory which has been shrouded in fable and mystery since the first dawn of civilisation.

We sincerely trust that England will not shrink from the path which fortune seems to have opened up to her. It has been her proud privilege to establish in more than one instance colonies such as the world has never before seen, and it is quite within the limits of possibility that

the way may now present itself for the foundation of an English speaking colony in central Africa that shall in time outrival our great Indian possessions. The latter seem destined to remain merely possessions on account of the climate, but in the case of Africa, if it should be found that there are large districts where Europeans may live without inconvenience, colonisation would speedily follow, and vast tracts which are now used as preserves by slave hunters would quickly become thriving settlements. It would be a grave misfortune if from the trivial fear of incurring fresh responsibilities, England held aloof from the opportunity which now presents itself. The responsibilities are not great, and for the present no decisive steps are necessary. All that is required is to wait and watch, seizing every opportunity of making our future advance more certain. But as we said before we believe that, willingly or unwillingly, England will eventually find herself drawn by the force of circumstances into active interference in Egyptian affairs. As the Egyptians themselves would say "it is destiny," and in this instance a proud destiny it may be made by judicious management. The time has not yet arrived when England may sit down with folded hands and imagine that her work is finished. A fair opportunity is all that is required—and given that, her sons will once more step forward and add another name to the long list of grand achievements which it has been England's lot to accomplish. Altogether, with a view to the success of the Khedive's reforms and retrenchments, with a view to a high road to India, and with a view to extended colonisation and civilisation the Anglo-Saxon race have just now a deep concern in the future good government and welfare of Egypt.

CORRESPONDENCE.

CRITICISM ON THE DOUBLE ALTITUDE PROBLEM,

AS SOLVED IN "RIDDLE'S TREATISE ON NAVIGATION," 6TH EDITION, 1855.

To the Editor of the "Nautical Magazine."

SIR,—As mathematical investigations relative to nautical problems are daily becoming more appreciated, and better understood by seamen than they were in former years, I trust you will deem the following remarks worthy of insertion in the next number of your Magazine. I make the remarks, not from a hostile feeling, but to remove what, in my opinion, is a blot in a work of first-class merit.

Mr. Riddle's investigation of Ivory's method for finding the approximate latitude is quite satisfactory; but his method of investigating the corrections of the approximate latitude and middle time are not elegant.

Now Mr. R. commends his investigation with the assumption that PP^1 is a small circle, having C as its pole, and, consequently, that the angles CPP^1 and CP^1P are right angles, and $CP = CP^1$; this should have been proved. The proof is as follows:—In any triangle AP^1B , having its base bisected in C , and if S be put for $\frac{1}{2}(BP^1 + AP^1)$ and D for $\frac{1}{2}(BP^1 - AP^1)$, it is easily proved that $\cos CP^1 = \frac{\cos S \cos D}{\cos AC}$;

but in this case $S = p$, and $D = c$, therefore $\cos D = \cos c = 1$; consequently $\cos CP^1 = \frac{\cos p}{\cos AC} = \frac{\cos AP}{\cos AC}$ (from the triangle ACP) $\cos PC$; hence $\cos PC = \cos P^1C$, and therefore $PC = P^1C$, and the angles CPP^1 and CP^1P are right angles.

Then, since it has been proved that APD and CPP^1 are right angles, therefore (subtracting APP^1 from each), we shall have $DPP^1 = CPA = H$ and in the triangle PDP^1 , $PP^1 = DP^1$. $\text{Cosec } DPP^1 = c$. $\text{Cosec } H$.

Again, as PEP^1 is a right-angled triangle, $PP^1E = 90^\circ - EPP^1 = CPP^1 - EPP^1 = ZPC = H^1$; but $PE = PP^1$. $\sin PP^1E$, or $C = c$. $\text{Cosec } H \sin H^1$, which gives the correction of the approximate latitude

We have now to find correction H^1 :—It has been already proved that $dH^1 = dh = ZP^1A - ZPA$; but $ZP^1A = ZP^1C - AP^1C$, $ZPA = ZPC - APC$; therefore $dH^1 = ZP^1C - ZPC - (AP^1C - APC) = dZPC - dAPC$. Now, if a, b, c be the sides of a triangle and A, B, C the opposite angles, C being the vertical angle, and c the base; then, if b and c be constant, but C and a variable, it is easily proved that $dC = -db(\cot a. \text{Cosec } C - \cot C. \cot b)$.

Hence, taking the triangle ZPC as varying to ZP^1C , and noticing that $PC = P^1C$ is constant, as also AC ; but that ZPC (or H^1 nearly) is variable, as also ZP : we shall have from the above formula, after making $C = ZPC$, $-db = -dZP = -dl = dl^1 = c \text{Cosec } H. \sin H^1$, $a = PC$, $b = ZP = l$, and $\cot b = \tan l^1$.

$$dZPC = c. \cot PC. \text{Cosec } H - c. \cos H^1. \tan l^1. \text{Cosec } H.$$

Then, taking the triangle APC changed to AP^1C , where PC and AC are constant, and making $C = APC (=H)$, $-db = -dAP = c$, $a = PC$, $b = p$: we shall have,

$$dAPC = c. \cot PC. \text{Cosec } H - c. \cot p. \cot H.$$

Therefore $dH^1 = dZPC - dAPC = c \cot p. \cot H - c. \tan l^1. \cos H^1. \text{cosec } H$: the same as Riddle gives with signs changed.

In conclusion, I beg to observe, that in converting such algebraical formulas into arithmetical rules, I wish to make some observations which may be useful to seamen; but I shall defer doing so at present, as I am afraid I have already exceeded your limits.

I may, however, now remark, that a seaman (in my opinion) would not puzzle himself with the correction for H^1 : he would prefer to calcu-

late the correct hour angle from that altitude which is nearest to the prime vertical, as he has the correct latitude after finding *c*.

JAMES GORDON.

Morden College, Blackheath, S.E.,
15th February, 1876.

CYCLONE.—MAURITIUS TO POINT DE GALLE.

To the Editor of the "Nautical Magazine."

SIR,—Thinking it may probably be of sufficient interest to your numerous readers, I send you the report of a cyclone, sent me by Captain C. Pearce, of the barque *Nevada*. I may add she was laden with 720 tons of coals.

Faithfully yours,

WILLIAM A. MITCHELL.

68, Fenchurch Street, London, 14th March, 1876.

Report of cyclone encountered by the barque *Nevada*, 490 tons register of London, bound from Mauritius to Point de Galle :—

January 8, 1876.—Left Port Louis at 4 a.m. Wind light at E.S.E. weather looking dirty. Bar. 29.95. On opening out Flat Island, found a heavy S.E. sea running, with wind rapidly increasing.

At 10 a.m. Bar. 29.70. Wind still rising, with a heavy sea. Made all small sails well secure, and began to prepare for bad weather.

At 4 p.m. Put ship under snug sail, viz., lower fore and maintopsail, reefed foresail and storm staysails. Bar. 29.50., with every appearance of a hurricane and tremendous sea making up; ship occasionally filling her decks with water.

At 8 p.m. Kept ship dead before the wind, handed lower foretop-sail, blowing terrifically.

At 10 p.m. Blew away the foresail (quite new). Only succeeded in gathering in the rags.

Midnight. Bar. 29.45. Wind hauling more southerly. Blew away lower maintopsail (nearly new); saved a small portion of it.

January 9, 4 a.m. Bar. 29.40. Wind S., almost a hurricane.

8 a.m. Brought ship to the wind on the starboard tack. Blowing a complete hurricane. Could not keep before the sea, for fear of pooping her. Wind veering to the W.

Noon. Bar. 29.30. Blowing terrifically. People could scarcely stand without holding on to something. Seas breaking over the ship fore and aft; ship under main and mizen storm staysails.

4 p.m. Bar. 29.25. Blew away both main and mizen staysails (both nearly new), after which we had to scud before it under bare poles. No canvas could be shown to such force of wind. Several sails that had been well secured with gaskets blew adrift, and were mostly lost. Bulwarks on both sides, from poop to fore rigging, were all washed away; also side ports, fore and aft, harness casks, water casks, pigsty, poop ladders, were all smashed. Wheel gratings and poop rails washed away; also several other things connected with deck gear. Much of the running rigging was washed to shreds; everything above and below suffered more or less.

From the 8th to the 11th. The wind has gone round in three complete circles, from S.E. round by S. to W., W. to N., N. to E. and S.E. flying suddenly from the latter point into the N.W., from thence blowing a heavy gale for three successive days, with a heavy cross sea, causing the ship to labour heavily, and to ship quantities of water continually.

From the commencement of the storm until it passed, the barometer readings varied from 29.95 to 29.05, after which it gradually rose to 29.50.

It was found by observation that, during the time of the hurricane, the ship made a true course of N. 8° E., and dist. 220 miles, whilst making three circles and running dead before the wind nearly the whole time. From the 16th to the 23rd nothing but light westerly and north-westerly winds and calms have prevailed.

(Signed) CHAS. PEARCE, Master.

EXAMINATION OF MASTERS. AND MATES.

To the Editor of the "Nautical Magazine."

SIR,—I have read with much interest the article in your issue for March, on "Board of Trade Examinations for Masters and Mates." The *Nautical* has always been distinguished for the fairness and liberality of its conductors in opening its pages for the free ventilation of every subject of interest having for its object the safety of life and property at sea. Under its new management more space has, perhaps, been devoted to the discussion of engineering questions than to those which specially interest the sailor; but, having in view the rapid progress of steam navigation, this is only what might be expected in a Magazine which is not the organ of any one branch of the profession, but of all. Perhaps you will allow an old sailor to discuss, from a sailor's point of view, one or two of the questions raised by the writer of the article referred to.

Let us, then, inquire, *first*, what is the object of these examinations; and, *second*, whether the present mode of conducting them fulfils the object for which they were established.

I take it that the main object the Legislature have in view is to see that all persons presenting themselves for examination are fully qualified to work out certain problems in navigation and nautical astronomy which are necessary to find out the position of a ship at sea, and to see that they possess sufficient knowledge of practical navigation and seamanship as will enable them to navigate a ship with safety and precision to and from every part of the navigable globe. Further, a person presenting himself for examination as a master must, in addition to the above qualifications, possess some knowledge of maritime law and marine insurance, inasmuch as while he is abroad and unable to communicate with his owner, he may be called upon to perform the duties of a merchant, and to decide legal questions of the highest importance to the interests of others, involving the loss or gain of large sums of money, and the making or marring of his professional reputation. He must have a smattering of medicine and surgery so as to be able to prescribe for his crew in the event of sickness; and he must know something of the construction of both wood and iron ships so as to be in a position to direct and supervise any repairs to his ship while in a foreign port. There are some other matters which the examinations do not extend to, such as the keeping of correct accounts between himself and his owner, involving a knowledge of foreign exchanges; but surely I have written enough to show the varied nature of the acquirements demanded from a shipmaster. It is often a puzzle to me how we, as a class, get along at all; and I am often surprised that we get into so few scrapes.

But, *second*, is the present mode of conducting the examinations the best way to ascertain whether an applicant is qualified to perform the duties he undertakes.

There are many people who can describe how a piece of work may be done, but who are quite incapable of performing it themselves; and a person may possess a perfect knowledge of the theory of navigation, and yet be inferior to one who only knows the practice, as far as regards the computing of a problem. Now, a shipmaster, in charge of a ship entering the British Channel during thick or heavy weather, may be called upon, during a short winter's day, to work out as many questions of a similar nature as comprise the ordinary master's work in the examination. He must do this often under very adverse circumstances, with the multitudinous cares of his responsible position exercising a benumbing and depressing influence over his mind. A single arithmetical mistake in his latitude or longitude may lead to the sacrifice of his ship and crew; therefore, in my opinion, "arithmetical accuracy" in his calculations is perhaps the most important of all the qualifications demanded of the shipmaster. We know that this accuracy cannot be attained except by constant practice in working out the problems, and I maintain that no

other mode of conducting the examinations is so well calculated to accomplish the end in view, and that no amount of theoretical knowledge can compensate for the want of "arithmetical accuracy."

It may be that no other examinations are conducted in this manner, but I would remind your readers that, in no other profession the safety or destruction of human life depends so immediately on the accuracy of a calculation that there may be neither time nor opportunity to check. If it be admitted that the safety of life at sea depends upon the accuracy of the calculations of these problems, it is surely not too much to expect of candidates that they should be able to do in the board-room what they may be called upon to do, under less favourable circumstances, any day at sea. So far as I understand the present mode of conducting the examinations, a candidate receives an examination-paper, containing a certain number of questions. He is allowed to work out the questions by the tables and methods he has been accustomed to use. When a candidate has finished his paper, it is examined by the examiner. Should it be correct, another paper is given him; if there are any errors, he is allowed to try to correct them, only one attempt being allowed. If the paper is returned a second time incorrect, it is counted a failure. Nothing can be fairer than that, and I am sure that the candidates themselves would much prefer it to an elaborate system of marks. The candidates can quite understand the conditions of success; if they do the work correctly, they pass; if incorrectly, they fail. A man who is well up in his work is sure to pass, independently of all caprice or personal leanings of the examiner.

The mark system may be well fitted to enable an examiner to estimate the relative merits of individual candidates, but it does not appear to be so well adapted to encourage a habit of strict accuracy; for although the correct solution of every problem is valued at so many marks, the partial or incomplete work has also a certain value, and the candidate may neglect some problems altogether, and leave others incomplete, and still obtain sufficient marks for a pass. In the ordinary affairs of life, we act upon a different principle; if we employ a person to build a ship or a house, we naturally expect the work to be finished before payment is made. The builder of a ship would not be at liberty to finish the hull and leave the deck fittings incomplete. If it be true, as alleged by the writer of the article in your March number, that candidates in London are allowed to correct their errors on the second day, after having an opportunity of "consulting the other candidates, and also the instructors," the practice is certainly objectionable; but, as far as I am aware, no such practice exists at the outports, the candidates being obliged to complete their nautical problems, including the correction of errors, on the first day, before leaving the examination-room.

As regards the examinations for the extra or honorary grades, these objections to deciding the qualifications of the candidates by means of marks do not apply, because all persons presenting themselves for the extra grades must first work the questions in the ordinary grade, and their arithmetical accuracy is thus sufficiently tested. It is probable that the system of marks, applied to the extra grades, might be a decided improvement, for, since certain new regulations came into force four or five years ago, there has been a great falling off in the number of applicants.

I do not know exactly what the writer of the article means by "rule of thumb." In all books on navigation there are certain rules laid down for the guidance of the student. These rules have been worked out by skilled mathematicians from the principles of trigonometry, and if applied as directed, under proper conditions, invariably produce a correct result. Take, for example, the rule for finding the true amplitude of a celestial body:—

$$\text{Sin amplitude} = \frac{\text{Sin declination}}{\text{Cos. latitude}}$$

Or, in plain English (using the reciprocal of the cosine), *to the log sine of the declination add the log secant of the latitude (rejecting 10 from the index), the sum is the log sine of the true amplitude.*

Now this rule will hold true under all possible circumstances of change of position; it does not matter what part of the world the ship may be in (with the exception of very high latitudes, where amplitudes are not suitable), the true amplitude may be found by it. Would the writer of the article call this mode of finding the true amplitude a "rule of thumb" method? or would a sailor, possessing sufficient mathematical knowledge to prove the rule, be likely to do so every time he wanted to take an amplitude? I think not. The same arguments may be used in respect to the other problems of navigation and nautical astronomy. Skilled mathematicians have devised the best and shortest methods to work by, and sailors are quite content to use them. If a sailor possesses a taste for mathematical studies, by all means let him exercise that taste, but do not allow his attention to be drawn away from other matters which may be of more importance. Most sailors go to sea at an early age, about 15 or 16; therefore the mathematical knowledge they can acquire at school must be very small. I have already indicated how varied and numerous the subjects are with which an efficient shipmaster must be acquainted; and most seafaring men will agree with me, that there is neither time nor opportunity to pursue mathematical studies at sea without neglecting some more important duty.

I quite agree with the suggestion, that "an appropriate diagram should be required to accompany every solution which admits of being solved

by construction," but this regulation would require to be gradually introduced, inasmuch as it would involve a pretty good knowledge of stereographic projection on the part of the candidates, and such knowledge is not acquired without much study.

I do not see what advantage three different classes of certificates would be, unless the Board of Trade instituted three different classes of ships.

In conclusion, I may state that it is unwise to set up a standard, for the honorary grades, higher than the average education of seamen will warrant. Let subjects of examination be gradually extended, year by year, and kept just sufficiently in advance to encourage the better educated among them to study their profession, and to prepare themselves for examination. But, after all, we must not expect too much from any system of examination. There are some qualities in men which no examination can test, such as energy and fortitude, and the ability to handle a ship in a seamanlike manner, in positions of peril and difficulty. I have known men who cut a poor figure before the examiners, but who afterwards, in actual service, proved that they possessed the highest qualifications as seamen and navigators.

T. T.

RULE OF THE ROAD AT SEA.

To the Editor of the "Nautical Magazine."

SIR,—I draw your attention to the Parliamentary paper on the Rule of the Road, number 353, 1876. In paragraph (c) of Art. 12, of the new rule proposed for sailing ships, should not the words "when not under way" also be supplemented by the words, "or when hove-to?" A sailor regards a sailing ship to be still "under way" though she is hove-to.

Suppose therefore, a vessel, B, is hove-to with the wind on her port side in a fog, and that another vessel, A, on the port tack approaches B, on her (B's) starboard side, according to the new Sound Signal rules both vessels would sound *two blasts*, and according to the new rule of the road, the hove-to vessel, B, being the windward of two vessels, each having the wind on the port side, would be expected to keep out of the way of A. If I am right, this is an absurdity. It appears to me that the phrase "under way" should, by an interpretation clause be so defined as to make it quite clear that hove-to vessels are either positively excluded from, or positively included in it.

Yours faithfully,

CORNELIUS JONES.

London, March 15, 1876.

SHIPBUILDING, 1876.

SAILING SHIPS.

Ports.	No. of Ships		No. of Ships		Gross Tonnage		Gross Tonnage	
	January and February.		correspond- ing months last year.		January and February.		corresponding months last year.	
Aberdeen	4	...	1	...	2,483	...	313
Barrow	1	...	2	...	1,091	...	1,640
Bristol	1	...	—	...	96	...	—
Cowes	1	...	3	...	89	...	310
Dartmouth	8	...	7	...	988	...	578
Dundee	1	...	2	...	847	...	1,900
Faversham	3	...	1	...	123	...	39
Glasgow	8	...	8	...	7,990	...	8,480
Greenock	1	...	2	...	347	...	2,993
Grimsby	5	...	3	...	748	...	182
Hartlepool	1	...	—	...	379	...	—
Hull	2	...	3	...	144	...	221
Jersey	3	...	2	...	211	...	150
Liverpool	7	...	3	...	4,843	...	3,893
London	2	...	1	...	136	...	59
Middlesbro'	—	...	1	...	—	...	182
Newcastle	2	...	1	...	1,738	...	370
Plymouth	6	...	1	...	823	...	189
Port Glasgow	4	...	4	...	2,240	...	4,094
Portsmouth	—	...	1	...	—	...	106
Rochester	2	...	2	...	88	...	95
Southampton	2	...	1	...	140	...	265
Stockton	—	...	1	...	—	...	1,472
Sunderland	9	...	6	...	5,817	...	5,937
Whitehaven	—	...	1	...	—	...	1,312
Yarmouth	8	...	1	...	144	...	28
Other Ports	25	...	20	...	4,158	...	2,905
Total		101		78		85,613		37,715

PRACTICAL APPLICATION OF THE SCREW-PROPELLER.—We have received a long letter from Mr. H. Wimshurst, who complains that his labours in bringing the screw into practical use are ignored by Mr. W. S. Lindsay in his book on merchant shipping. The letter is in type, but owing to an unusual press of matter, both Mr. Wimshurst's letter, and our review of Mr. Lindsay's splendid book, are crowded out this month.

SHIPBUILDING, 1876.

STEAMSHIPS.

Ports.	No. of Ships January and February.	No. of Ships correspond- ing months last year.	Gross Tonnage January and February.	Gross Tonnage corresponding months last year.
Glasgow ...	3	16	2,382	19,416
Greenock ...	2	4	572	7,292
Port Glasgow	2	4	2,686	2,938
Sunderland	3	3	4,479	4,672
Newcastle	6	6	4,203	7,316
North Shields	4	4	297	3,030
South Shields	—	2	—	626
Liverpool ...	—	1	—	1,113
Dundee ...	1	—	1,319	—
Hartlepool	1	4	15	4,194
Aberdeen ...	2	1	826	632
London ...	2	1	141	273
Belfast ...	1	—	497	—
Middlesbro'	1	3	1,351	2,631
Hull ...	2	—	430	—
Whitby ...	—	2	—	2,015
Southampton	3	—	410	—
Other Ports	3	2	176	795
Total	36	53	19,734	56,943

THE NAVY ESTIMATES.—The Navy Estimates for the year 1876-7 have been issued. They represent a nett increase of £463,678, the total expenditure estimated for being £11,288,872, as compared with £10,825,194 for the last financial year. The number of seamen provided for is 46,000, being the same number as last year, and of marines 14,000, the same number as last year. The total forces in the Fleet and Coastguard Services provided for are 60,000 against the same number last year.

REMARKS ON REVOLVING STORMS.

BAY OF BENGAL.

THE following information respecting the revolving storms or cyclones of the Bay of Bengal is derived from a report on the Midnapore and Burdwan cyclone of 15th and 16th of October, 1874, by W. G. Willson, Esq. :—*

Important distinctions have been observed between the cyclones which visit the shores of Bengal in October and November, and those which occur in April and May. The storms of October and November are usually generated in the eastern part of the Bay of Bengal, near or a little north of the Andaman islands, and although in that locality the formation of the storm is preceded by many days of bad weather, and probably by a low barometer, there are usually no weather indications along the Bengal coast line of the existence of the coming storm until a day or two before its arrival; and it is not until the place is near the limit of the gale of wind which surrounds the body of the advancing cyclone that any decided fall in the barometer takes place. In the north-west part of the Bay of Bengal during this season north-easterly winds predominate.

The cyclones which are generated in October, somewhere between 14° N. and 18° N., are those which most frequently visit the Bengal shores, whilst the storms of November, which are generated further south, are (usually) only felt along the Madras coast.

The cyclones which visit the shores of Bengal in April and May are usually generated in the northern part of the Bay of Bengal; the barometer falls steadily and considerably four or five days previously; south-west winds prevail during this season, and winds from the north-east are very unusual. The storms in April and May are not usually so violent as those of October, and seldom travel far inland.

Before a cyclone in the Bay of Bengal, and during its approach, north-easterly winds prevail over many degrees of longitude to the north of the storm, both on the eastern and western side of the path subsequently pursued, and there seems to be no marked tendency of the wind to veer until the cyclone is close at hand.† This fact, affecting as it does the generally received rule of allowing eight points to the right‡ of the

* Report on the Midnapore and Burdwan cyclone of 15th and 16th October, 1874, by W. G. Willson, Esq., M.A., Calcutta, 1875.

See Remarks on Revolving Storms, 2nd edition, 1875. Published by the Admiralty.

† As far as the data show, the winds were north-easterly all over the Bay of Bengal, north of latitude 17 deg. N., as early as noon of the 11th October, 1874, and south-westerly south of latitude 15 deg. N.

‡ In the discussion of the Midnapore and Burdwan cyclone, Mr. Willson considers that allowing ten or eleven points to the right of the direction of the wind will give the bearing of the centre of the storm more accurately.

direction of the wind to determine the bearing of the centre of a storm, is important for the seaman to remember ; and a decided fall of the barometer should take place before the centre is assumed to bear eight points to the right of the direction of the wind. At a considerable distance from the centre, and before the barometer shall have fallen much, the centre may bear as much as twelve points to the right of the direction of the wind.

From the foregoing remarks, it will (in vessels situated to the northward of the storm's path) be apparent that whereas in April and May the fall of the barometer and the shift of wind from S. or S.W. to N.E. give timely warning of the approach of a cyclone, yet in October and November the fall of the barometer is usually small, and there is no warning shift of wind if the vessel be to the north of the storm's path.

To make use of the slight fall of the barometer, mentioned, the seaman should know that the barometer in these latitudes has four diurnal oscillations, which are perfectly regular in settled weather. The mercury is highest at 10 a.m. and 10 p.m., the lowest at 4 a.m. and 4 p.m. ; the difference between the heights at 10 a.m. and 4 p.m. is usually one-tenth of an inch ; and if the barometer did not rise from 4 a.m. to 10 a.m., or from 4 p.m. to 10 p.m., the seaman should be on his guard, as in these latitudes the instrument would thus indicate considerable atmospheric disturbance.

At the entrance of the River Hoogly the earliest indications of a coming cyclone are probably afforded by the motions of the lower clouds which drift rapidly by in dark elongated masses from N.E. to S.W., and this is one of the surest tokens of a cyclonic disturbance ; these signs are never absent at the Hoogly whenever there is a cyclonic disturbance anywhere in the middle or northern parts of the Bay of Bengal. The mean direction of the wind at the Sandheads before a cyclone is always N.E. or E.N.E., more usually E.N.E. when the place is on the track of the storm, but it varies considerably in the gusts, which increase in strength as the storm approaches. The squalls become more frequent, the driving rain which accompanies them is gradually heavier as the cyclone approaches, and a heavy swell comes up from the south-eastward. With such indications, even if the barometer up to the time shall have shown no considerable fall, it may be concluded that the cyclone is not very far distant, and it may be expected that the barometer will give less warning of the approach of a storm in October* than in May or June.

* The commanders of the pilot brigs stationed off the mouth of the river Hoogly seemed to have misjudged the distance of the Midnapore cyclone (15th October), and were probably misled by the slowness of the fall of the barometer, before they were actually within the radius of the hurricane, and they did not get out of the way until it was too late.—*Remarks by Mr. Willson.*

The storm wave accompanying the Midnapore and Burdwan cyclone raised the level of the water in Diamond harbour, river Hoogly, 16 feet.

SOUTHERN INDIAN OCEAN.

In July, 1871, H.M.S. *Icarus*, Commander Lord Charles T. M. D. Scott, experienced a revolving gale in lat. 13° S., long. 93° E. As this storm occurred at an unusual time of the year, it is worthy of record.

From noon of the 10th, when the ship was in lat. $10^{\circ} 40'$ S., long. $94^{\circ} 28'$ E., until noon of the 11th, when in lat. $13^{\circ} 38'$ S., long. $92^{\circ} 35'$ E., the wind was uniformly from E.N.E. to N.E., with a force of 4 to 7, barometer gradually falling from 29.95 to 29.74, weather looking threatening, with a confused sea.

At 4 p.m. of the 11th, the barometer having fallen to 29.50, the vessel was hove to on the port tack.

From that time the wind veered gradually through north until 4 a.m. of the 12th, when the wind was W.N.W., force 5 to 8, squally, with a confused sea, the barometer having risen to 29.78. The wind continued to blow from the same direction, W.N.W., force 5 to 8, until noon, when the barometer stood at 29.94. At 11 p.m. of the 12th the wind had veered to south, force 2 to 4, bar. 30.07, fine weather.

In March, 1875, H.M.S. *Volage*, Captain Henry Fairfax, when on the passage from Kerguelen Island to Ceylon, experienced a heavy storm of a revolving character in lat. 27° S., long. 83° E., nearly midway between Madagascar and Australia, and on the southern margin of the S.E. trade wind region. Although this storm occurred at the hurricane period of the year in the Indian Ocean, records for this locality are wanting, and the following information may be useful to seamen.

From noon of the 7th, when the ship was in lat. 29° S., long. 84° E., until noon of the 8th, when in lat. $26^{\circ} 45'$ S., long. $83^{\circ} 38'$ E., the wind was from S.E. to E. by S., with a force of 7 to 10, heavy squalls with rain, barometer gradually falling from 30.16 to 29.83; a heavy sea from the eastward gradually rising. At midnight, the vessel being then close hauled on the starboard tack, commenced steaming, to keep to the wind, which was then E.S.E., force 9 to 11, fierce squalls; a very heavy sea from the eastward.

At 2 a.m. on the 9th the barometer had fallen to 29.30, its lowest: from that time the wind veered gradually to the east and north, and moderated with a rising barometer. At midnight the wind was N. by E., force 4, barometer 29.84, sea moderating.

Hydrographic Office, Admiralty, London, 3rd March, 1876.

MONTHLY ABSTRACT OF NAUTICAL NOTICES.

No.	PLACE.	SUBJECT.
69	ST. LAWRENCE RIVER—Kamouraska Islands—Grande Island	Alteration in Light.
70	NOVA SCOTIA—Tor Bay—Berry Head	Establishment of a Light.
71	NOVA SCOTIA—Halifax—George Island	Establishment of Lights.
72	IRELAND—Lough Foyle—Warren Point	Alteration in Light.
73	CHINA—Pescadores Islands—Fisher Island—Litsitah Poin	Exhibition of Light.
74	CHINA—Amoy Harbour—Tsing-Sen Island	Exhibition of Light.
75	ENGLAND—Isle of Wight—St. Catherine Point	Alteration in Height of Light.
76	ENGLAND—Isle of Wight—South Yarmouth	New Pier and Light.
77	SOUTH ATLANTIC OCEAN—Brazil	Shoal off Brazil Coast.
78	PACIFIC OCEAN—Caroline, Vostock, and Flint Islands	Correct positions on Admiralty Charts.
79	SOUTH AMERICA—Brazil—Pernambuco Roads	Sunken Rock near Anchorage.
80	SOUTH AMERICA—Ceara—Macoripe Point	Revolution of Light.
81	ENGLAND—Spithead—Ryde Middle Shoal	Alteration in position of Buoya.
82	WEST INDIES—Porto Rico—Port San Juan	Removal of Light.
83	AUSTRALIA — Victoria—Port Phillip — West Channel Light-Vessel	Re-establishment of Second Light.

NAUTICAL NOTICES.

69.—RIVER ST. LAWRENCE.—*Kamouraska Islands*.—The light on Grande island has been changed from a fixed white light to a *revolving white light*, attaining its greatest brilliancy *every minute*.

70.—NOVA SCOTIA.—*Tor Bay*.—*Berry Head*.—On the 10th April, 1876, a light will be exhibited from a lighthouse on the eastern point of Berry head, west side of the entrance to Tor bay. The light will be a *fixed* light, showing *red* to seaward, and *white* to the northward into the bay and towards Molasses harbour; it is elevated 51 feet above high water, and should be seen 10 miles. The tower, 36 feet high, is a square wooden building, attached to the keeper's dwelling, and painted white with red vertical stripes. Position, lat. 45° 11' 40" N., long. 61° 18' 40" W.

71.—NOVA SCOTIA.—HALIFAX.—*George Island*.—Two lights are now exhibited from a lighthouse on the west side of George island, Halifax harbour. The lights are *fixed* white lights, 20 feet apart vertically, the upper one elevated 50 feet above high water. They are seen from seaward, and also on the north side, into the harbour, but on the west side the upper light only is seen. The tower, 21 feet high, is a square wooden building, painted drab. This light is for the purpose of guiding vessels into and out of Halifax harbour westward of George island.

Note.—Vessels entering the harbour, passing Maugher beach, must keep these lights on the starboard bow, and, after passing George island, may anchor in any part of the harbour.

72.—IRELAND.—*Lough Foyle.*—*Warren Point.*—The following alteration has been made in Warren Point light, viz.:—The light has been changed to a *red and white* light: it shows *red* to the southward between the bearings of about E. by N. $\frac{1}{4}$ N. and W. $\frac{1}{4}$ S., and *white* to seaward from about the bearing of W. $\frac{1}{4}$ S. northward as far as the land will allow, and is not cut off for the Bluick Rock and other outlying dangers: it will also show *white* up Lough Foyle when bearing from about E. by N. $\frac{1}{4}$ N. to about E. $\frac{1}{2}$ N. From the bearing of E. $\frac{1}{2}$ N. to the shore the light will be obscured.

73.—CHINA.—*Pescadores Islands.*—*Fisher Island.*—*Litsitah Point.*—With reference to Nautical Notice, No. 186 (August, 1875), on an intended light on Litsitah Point, south-west extremity of Fisher Island, further notice has been given that the light is now exhibited. The light is a *fixed white* light of the fourth order, elevated 205 feet above the sea, and should be seen 15 miles. The tower, 83 feet high, is round, built of iron, and painted black; the keeper's dwelling and boundary wall will be white. Position, lat. $23^{\circ} 32' 50''$ N., long. $119^{\circ} 28' 10''$ E.

74.—CHINA.—*Amoy Harbour.*—*Tsing-Seu Island.*—With reference to Nautical Notice, No. 173 (July, 1875), on the intended establishment of a light on Tsing-Seu Island, further notice has been given that the light is now exhibited. The light is a *fixed red and white* light of the fourth order, showing *red* between the bearings of North and N.W. by W.; *white* over the entrance and up the harbour between the bearings of N.W. by W. and S. E. $\frac{1}{2}$ E.; and *red* when bearing from S.E. $\frac{1}{4}$ E. to East; it is elevated 180 feet above the sea, and the white light should be seen 15 miles, and the red light 8 miles. The tower, 83 feet high, is octagonal in shape, built of stone and brick, and painted in red and white vertical stripes; the dwellings are white. Position, lat. $24^{\circ} 22' 15''$ N., long. $118^{\circ} 7' E.$

75.—ENGLAND.—*Isle of Wight.*—*Catherine Point.*—With reference to Nautical Notice, No. 144 (June, 1875), on the intended alteration in the height of St. Catherine's point light, further notice has been given that the alteration has been completed. The light, which has been greatly increased in power, is now permanently exhibited, at an elevation of 134 feet above high water, and should be seen from a distance of 17 miles. It is visible seaward between the bearings of S.E. $\frac{1}{4}$ E. and W. $\frac{3}{4}$ N.

76.—ENGLAND.—*Isle of Wight.*—*South Yarmouth.*—A wooden pier is in the course of construction at South Yarmouth, and nearly completed, from the end of which a temporary white light is now exhibited. The

pier extends from the end of Bank Street in a N. by E. $\frac{1}{4}$ E. direction, 712 feet; it is built of wood and painted white.

77.—SOUTH ATLANTIC OCEAN.—Mr. Morgan, the master of the English barque *Professor Airy*, reports the existence of a shoal, on which that vessel grounded about 180 miles from the coast of Brazil, in lat. $17^{\circ} 9'$ S., long. $86^{\circ} 4'$ W., with a light S.S.E. wind and clear weather, the barque suddenly struck the bottom and remained aground for nearly an hour. Whilst aground, the depth alongside was $17\frac{1}{2}$ feet, and when the vessel floated, no bottom could be found with 25 fathoms. During the night, soundings were several times tried for with 40 fathoms, but no bottom obtained. The position assigned to the shoal is about 10 miles S.S.E. from the southern part of a bank on which soundings, varying from 31 to 70 fathoms, were obtained by H.M.S. *Fly*. It is also about 40 miles northward of the Hotspur bank, on which the surroundings vary from 25 to 34 fathoms.

Note.—Navigators should, in the neighbourhood of these banks, proceed with caution, and are recommended to use the lead frequently.

72.—PACIFIC OCEAN.—*Caroline, Vostock, and Flint Islands*.—The undermentioned positions of Caroline, Vostock, and Flint islands should be substituted for the positions assigned to them on the Admiralty Charts of the Pacific Ocean, Nos. 788 and 2,683, viz.:—Caroline island, lat. $9^{\circ} 54'$ S., long. $150^{\circ} 6'$ W.; Vostock island, lat. $10^{\circ} 5'$ S., long. $152^{\circ} 28'$ W.; Flint island, lat. $11^{\circ} 26'$ S., long. $151^{\circ} 48'$ W.

79.—BRAZIL.—*Pernambuco Roads*.—The existence of a sunken rock is reported near the southern part of man-of-war anchorage, Pernambuco Roads. The rock (*Forbin rock*) has 14 feet on the shoalest part, and from it Fort Picao lighthouse bears N. by W. $\frac{1}{4}$ W. $1\frac{1}{2}$ miles, and the south end of Cinco Pontes Fort, W.N.W. $1\frac{1}{2}$ miles.

80.—BRAZIL.—*Ceara Bay*.—*Macoripe Point*.—The revolving light on Macoripe Point attains its greatest brilliancy every half minute, and not every minute as hitherto supposed.

81.—ENGLAND.—*Spithead*.—*Ryde Middle Shoal*.—In consequence of changes in the depth of water having taken place at the eastern end of Ryde Middle Shoal, it has been found necessary to move the N.E. and S.E. Middle buoys a little to the eastward.

82.—WEST INDIES.—*Puerto Rico*.—*Port San Juan*.—The light exhibited on Morro Fort has been moved to a new position, but no details of that new position has been given.

83.—AUSTRALIA.—*Victoria*.—*Port Phillip*.—With reference to Nautical Notice, No. 89 (April, 1875), on the discontinuance of the light exhibited from the foremast of the West channel light-vessel, information has been received that the light on the foremast has been re-established, and the light-vessel now exhibits two lights as formerly.

HYDROGRAPHIC NOTICES PUBLISHED BY THE ADMIRALTY.

Nos. 1 and 2.—Information relating to the East Coast of China, by E. M. Edmond, commanding the Peninsular and Oriental company's steamship *Orissa*, 1875. Also information relating to Sung-mun Harbour, from Admiral A. P. Ryder.

No. 3.—Information relating to islands in the Pacific Ocean in Friendly and Fiji islands, Rotumah, New Hebrides, Banks, Loyalty, New Caledonia, Solomon, New Ireland, Duke of York, Admiralty, Hermit Monks, Anchorite, L'Echiquier, New Guinea, Samsan, Ellice, Gilbert Marshal, and Caroline islands, &c.; by the officers of Her Majesty's ships on the station, and Staff Commander F. H. Fizard, Her Majesty's ship *Challenger*, 1875.

CHARTS, &c., Published by the Hydrographic Office, Admiralty, to the end of March, 1876, and sold by the Agent, J. D. Potter, 31, Poultry and 11, King Street, Tower Hill.

No.	Scale.		
1386	various	South Pacific Ocean :—Easter Island or Rapa Nice, and Plans of Cook Bay and Sala y Gomez	1
715	various	Indian Ocean :—Rodriguez Island, and Plans of Mathurin Bay and Port South-east	1
792	m = 1·0	Malay Peninsula :—Dinding Channel and approaches	0 6
2404	m = 1·0	Singapore Main Strait	1 6
2485	m = 1·5	Barbados Island	2 6
1058	m = 1·25	Western Australia :—Rottnest Island to Warnbro Sound	2 6
525	m = 0·5	Florida Reefs :—Boca Grande Bay to Tortugas Cay	2 6
204	m = 3·5	Italy, South Coast :—Gallipoli and Cotrona	0 6
54	m = 0·56	Korea, East Coast :—Port Lazarep, Broughton Bay	0 6
456	m = 2·4	Jamaica :—Port Royal Bay and Kingston Harbour	2 6
200	m = 0·4	Newfoundland :—Placentia to Burin Harbour	2 6

OUR OFFICIAL LOG.

BOARD OF TRADE CIRCULARS.

INSTRUCTIONS TO SURVEYORS.—STEERING GEAR.—The Board of Trade having been advised that it is necessary to make certain alterations in paragraph 56 of the Book of Instructions recently issued, the Surveyors are informed that the first clause of that paragraph, which directs that "the steering gear should not be too rigid amongst the gearing," is hereby withdrawn, as is also the clause which provides for stops being fitted on the rudder to prevent its going too far over, or damaging the screw gear by the nuts travelling too far. The Surveyors should at once expunge these clauses of paragraph 56 in their copies of the Instructions.—Edward Stanhope, Secretary; Thomas Gray, Assistant-Secretary.—*Circular, No. 47.*—February, 1876.

NOTICE TO SHIPMASTERS AND OWNERS.—SCURVY.—It having been brought to the notice of the Board of Trade that, in seven out of ten cases of outbreaks of scurvy into which they have instituted inquiries during the year 1875-6, an insufficient quantity of lime-juice was found to have been served out, the attention of shipmasters and owners is directed to the penalty for neglect in this particular, mentioned in Section 4 of the Merchant Shipping Act, 1867; also to their liability for expenses, &c., attendant upon the illness of any seaman or apprentice caused by such neglect. (See Section 7 of Merchant Shipping Act, 1867.)—Edward Stanhope, Secretary; Thomas Gray, Assistant-Secretary.—*Circular, No. 49.*—March, 1876.

INSTRUCTIONS TO SUPERINTENDENTS.—SCURVY.—With a view to prompt action being taken in all cases in which it may be necessary to institute inquiry into the circumstances attending outbreaks of scurvy on board British vessels, the Superintendents are requested to report at once *by telegraph* to this Department all *bad* cases coming under their notice, giving the number of men suffering from the complaint, and also stating whether they are severely affected.—Edward Stanhope, Secretary; Thomas Gray, Assistant-Secretary.—*Circular, No. 50.*—March, 1876.

APPOINTMENT.—The Board of Trade have appointed Mr. James Taffs, Inspector of Shipwrights at Chatham Dockyard, to be a Surveyor of Shipping at Dublin.

SHIPS DETAINED.—It appears from a Parliamentary return that between September 6, 1875, and January 27, 1876, 22 ships were detained by order of the Board of Trade upon complaints made by the crews, and released after having been repaired. In 16 other cases the complaints of crews proved unfounded.

TRADING IN HAYTI.—The Board of Trade have received from the Secretary of State for Foreign Affairs a copy of a law of the Haytian Government regulating the conditions under which Trade is to be carried on both by natives and foreigners in the Republic of Hayti. The document may be seen on application at the Statistical and Commercial Department of the Board of Trade, 1, Whitehall.

EMIGRATION.—From a return issued by the Statistical Department of the Board of Trade, we learn that the total number of persons who emigrated from the United Kingdom during 1875 was 178,809, against 241,014 in 1874. Of these 185,806 went from England, 15,109 from Scotland, and 23,894 from Ireland; 105,046 went to the United States, 17,378 to the North American colonies, 35,525 to the Australian colonies, and 15,860 to other places not named in the return.

SHIPS REPORTED FOR SURVEY.—From a Parliamentary return we learn that the number of vessels reported for survey from the 5th August, 1873, to the 31st December, 1875, as being defective in hull, equipments, or machinery, was 697. Of these 19 were found seaworthy, 664 were found unseaworthy, and in 14 cases the survey was pending; 36 were dismantled or broken up. The number of alleged cases of overloading or improper loading in the same period was 93. Of these two were found seaworthy, and 91 were found unseaworthy.

SPANISH CONSULAR REGULATIONS.—The Board of Trade have given notice to shipmasters that they have received information from the Secretary of State for Foreign Affairs, that the Spanish Government, considering that sufficient time has elapsed since the publication of the Royal Order of 6th October last, are now about to enforce the said Order, of which the following is a translation:—"Ministry of Finance.—Sir,—In conformity with the Report made by the Ministry of State, His Majesty the King (whom God preserve) has thought fit to order that captains of vessels coming from foreign ports where there are Spanish consuls or consular agents, and not holding the manifest with the visa of the said functionaries as ordered by the Decree of 30th May, 1873, shall pay at the Custom Houses, besides the fines laid down in the said Decree, the consular fees according to the following rules:—1. When the vessel brings a general cargo in packages (*en bultos*) Article 48 of the consular tariff in force will be applied. 2. When she brings a cargo in bulk (*a granel*), or when the cargo is within the conditions set forth in Article 50, Article 49 of the same tariff will be applied thereto. 3. The captains are also subject to the payment for countersignature of the roll, in conformity with Article 1 and following Articles, according to the special circumstances of each vessel; they are likewise subject to that which is laid down in Article 54 concerning the drawing up or legalizing of the manifest, and to that which is specified in Article 58 concerning the bills

of health and their countersignature. 4. When the vessel comes in ballast, without performing any commercial operation, she is exempt from all consular fees directly affecting the vessel and navigation. By Royal Order I communicate this to you for your information, and that you may order it to be fulfilled by the Custom Houses of the Kingdom. God, &c., (Signed) SALAVERRIA.—Madrid, 6th October, 1875.—To the Director-General of Customs."

BOARD OF TRADE PROSECUTIONS.—Mr. Murton, the solicitor to the Board of Trade, has prepared a statement of the several cases of unseaworthiness which have been referred to him for prosecution under the provisions of the Merchant Shipping Acts of 1871 (Sec. 11) and 1875 (Sec. 4.) There has, he says, been anxious desire to enforce these provisions. Speaking, however, of the new enactments of 1875, the prosecutions have so far been very few, but in estimating the operations of the Act, certain considerations should be borne in mind. In the first place, very few cases of so-called unseaworthy ships ever come within the scope of the fourth section at all. Unless, therefore, the ship is actually despatched from port, or unless steps are taken to despatch her which, but for interruption, would result in her going to sea, no criminal liability is incurred. In fact the detaining clauses which enable surveyors to stop an unseaworthy ship before she leaves port, by that very means intercept also the completion of the offence of sending, or attempting to send, the ship to sea. Out of several hundred cases of detention an insignificant number only can, therefore, be referred for prosecution, owing to the preventive effect of the measures previously taken. Again, it should be remembered that the full operation of the Act dates from a recent period. The clauses which made compulsory the registration of Managing Owners did not begin to operate until November 1. It is probably premature to estimate in any wide or exhaustive sense the results of the fourth section. Mr. Murton mentions some of the difficulties which have beset these prosecutions, and he mentions as a noteworthy fact that the vessels which have come under consideration in reference to the Act have not been large vessels, and many of them were quite of small tonnage. It is a subject for regret that the prosecutions for unseaworthiness should not be heard before a Stipendiary Magistrate. It is inevitable and not unnatural that a lay bench of magistrates living among a shipping community, and probably themselves shipowners, should be supposed to be less keen in the enforcement of the law than a Stipendiary Magistrate. Mr. Murton is afraid this is in many cases an inherent difficulty which cannot be obviated. Another matter for observation is the great expense attending the detention of the witnesses after the close of the official inquires for the purpose of these prosecutions.

THE SEAL FISHERY.—At the Court at Windsor, the 12th day of Feb-

ruary, 1876. Present,—The Queen's Most Excellent Majesty in Council Whereas by the first section of "The Seal Fishery Act, 1875," it is enacted that when it appears to Her Majesty in Council that the foreign States whose ships or subjects are engaged in the seal fishery in the area mentioned in the schedule to that Act, or any part of such area have made or will make with respect to their own ships and subjects the like provisions to those contained in that Act, it shall be lawful for Her Majesty, by Order in Council, to direct that that Act shall, after the date mentioned in the order, apply to the seal fishery within the said area, or such part thereof as may be specified in the order; and it is also enacted that Her Majesty may from time to time, by Order in Council, rescind, alter, or add to any order made in pursuance of the said section, and make a new order in lieu thereof: And whereas by Order in Council dated the 5th day of February instant Her Majesty was pleased to direct that "The Seal Fishery Act, 1875," should, after the date of the order, apply to the seal fishery within the area mentioned in the schedule to the said Act, and was further pleased to fix the 3rd day of April in every year as the day before which the master and person in charge of, and every person belonging to, any British ship, and every British subject, should not kill or capture, or attempt to kill or capture, any seal within the area mentioned within the schedule to the said Act: And whereas, since the date of the above-recited order it has been made to appear to Her Majesty that the Government of Norway, one of the foreign States whose ships or subjects are at present engaged in the seal fishery in the area mentioned in the schedule to the said recited Act, are unable this year to make in time for the fishing of this season (as they had expected), with respect to their own ships and subjects, the like provisions to those contained in the said recited Act: And whereas Norway has more ships and subjects engaged in the seal fishery within the said area than all other foreign states: Now, therefore, Her Majesty, in exercise of the powers vested in her by the said recited Act, by and with the advice of her Privy Council, is pleased to rescind the order made by her on Feb. 5 inst., as above mentioned.—C. L. PEEL.

—(From the *London Gazette*.)

THE "BESSEMER."—The steamship *Bessemer*, now lying in the Mill-wall Docks, has been offered for sale by auction, by order of the liquidators of the Bessemer Saloon Steamboat Company (Limited); but the auctioneer failed to obtain a bid, and withdrew the vessel from sale remarking that he would be happy to treat privately with any intending purchaser.

GENERAL.

SAVING LIFE BY THE SYSTEM OF MR. ROGERS.—Some experiments were recently made on the Hendon Sands to test the effectiveness of Mr. Rogers's system. A barque was wrecked on the Hendon Sands on the 14th November, and Mr. Rogers's coadjutor availed himself of the opportunity to throw a line to her on or about the 26th November. John Lea, a seaman, seems to have been looking on. It appears that the first shot carried the block and whip somewhere approaching 50 yards, the second about 100 yards. The trials seemed to be conducted on the principle of increasing the range, and therefore increasing the charge of powder each time. We do not know the charge put in the third time, but it burst the mortar. Lea, who was standing a few yards behind the mortar, having his hands, sailor-fashion, in the pockets of his trowsers, and twiddling a sailor's knife, received a piece of the mortar on his right hand, which was severely mutilated by it; but for his hand, and the knife in it, he would have received a fatal injury in his groin. Another man merely lost the tails of his coat, and a third his cap. Poor Lea, who has a wife and two children, is permanently disabled from following the sea. He is, or we must now say was, a member of the Naval Reserve, and a fine seaman. Great pains have been taken to keep this incident as quiet as possible. We have no doubt that the Honourable Captain Maude, and other gentlemen who are pressing the cone-block system on the Government, will see that Lea and his family are provided for. Seeing that Mr. Rogers's supporters have used very strong epithets against those gentlemen who have not adopted the system, and at once superseded the rockets, it is only fair that they should afford liberal means of support to the earliest of the sufferers among its users. The sum of £5 has already been paid to Lea, and, we believe, his doctor's bill. We have heard that Mr. Rogers himself has recently visited Sunderland, and explained his apparatus, but we do not suppose he has told the above story. The experiment we have referred to, we believe, was either conducted by or in the presence of a Mr. Lemon, whose connexion with the Rogers system is well known.

THE DEPTH OF THE SEA.—At a recent meeting of the Royal Society, Mr. Siemens, D.C.L., F.R.S., exhibited the instrument he has devised to ascertain the depth of the sea by a new means without using a sounding line. He has worked out the requirements, starting with the proposition that the total gravitation of the earth, as measured on its normal surface, is composed of the separate attractions of all its parts, and that the attractive influence of each equal volume varies directly as its density

and inversely as the square of its distance from the point of measurement. The density of sea water being about 1.026, and that of the solid constituents composing the crust of the earth about 2.763 (this being the mean density of mountain limestone, granite, basalt, slate, and sandstone), it follows that an intervening depth of sea water must exercise a sensible influence upon total gravitation if measured on the surface of the sea. Mr. Siemens showed how his influence can be proved mathematically in considering, in the first place, the attractive value of any thin slice of substance in a plane perpendicular to the earth's radius supposing that the earth is regarded as a perfect sphere of uniform density, and not affected by centrifugal force. It was in 1859 that Mr. Siemens first attempted to construct an instrument based on these principles. The difficulties he then encountered he has since overcome, and the present instrument is the result of his latest work. He proposes to call it a bathometer, and it consists essentially of a vertical column of mercury contained in a steel tube having cup-like extensions at both extremities, so as to increase the terminal area of mercury. The lower cup is closed by means of a corrugated diaphragm of thin steel plate, and the weight of the column of mercury is balanced in the centre of the diaphragm by the elastic force derived from two carefully tempered spiral steel springs of the same length as the column of mercury. One of the peculiarities of this mechanical arrangement is that it is parathermal, the diminishing elastic force of the springs with rise of temperature being compensated by a similar decrease of potential of the mercury column, which decrease depends upon the proportions given to the areas of the steel tube and its cup-like extensions. The instrument is suspended a short distance above its centre of gravity in a universal joint, in order to cause it to retain its vertical position, notwithstanding the motion of the vessel; and vertical oscillations of the mercury are almost entirely prevented by a local contraction of the mercury column to a very small orifice. The reading of the instrument is effected by means of electrical contact, which is established between the end of a micrometer-screw and the centre of the elastic diaphragm. The pitch of the screw and the divisions upon the rim are so proportioned that each division represents the diminution of gravity due to one fathom of depth. Variations in atmospheric pressure have no effect on the reading of the instrument, but corrections have to be made for latitude. The instrument has been actually tested in voyages across the Atlantic in the *Faraday*, and the comparisons with Sir W. Thompson's steel-wire sounding apparatus showed it was very reliable. The paper concluded with pointing out many ways in which the instrument might be of use; among others was that of indicating approaching danger if contour lines were first efficiently mapped.

THE

NAUTICAL MAGAZINE.

VOLUME XLV.—No. V.

MAY, 1876.

THE ROYAL NAVY AND MERCHANT SERVICE.

IT has been the dream of many theorists that all merchant sailors should be compelled to pass a certain portion of their seafaring life in active service in the Royal Navy ; for it has been urged that by that means all our merchant sailors would be drilled and disciplined, and always ready with perhaps a little "setting up" drill, to take their place in the fleet.

We do not think that this theory of making an interchange of seamen's services between the Merchant Service and the Royal is likely to come to pass, because under the existing state of things it is impossible and unnecessary. We would beg our readers to note, that we say under the "existing state of things." It is possible to conceive of a state of things, however improbable, under which the interchange of service referred to might be necessary ; but that would be something very different from the existing state of things.

It might, for instance, some day be possible that the permanent number of blue jackets in the Navy, and the number of sailors in the Mercantile Marine, should be nearly equal ; and it might be possible that the wages of seamen afloat in both services should be of a like amount ; and it might be possible that by an addition, a very great addition, of sailing cruisers in the Royal Navy, and the introduction of machinery on board, the instruction imparted to seamen there, would be of use to them afterwards in the Merchant Service. And it might be possible also under very much altered circumstances, that the knowledge of gun, pistol, cutlass and single-stick drill might be of use in the merchant

service. We can never tell what may be the contingencies of the future. All we can say with certainty is that it is impossible just yet to regard the conditions and acquirements above referred to as interchangeable units.

The foregoing remarks chiefly apply to the fore-castle hands. Let us now take the case of the officers. A time may arrive when it will be necessary for master mariners to make a study of the best method of bringing about a collision most disastrous to their opponents, or it might be necessary for master mariners to cultivate a special knowledge of gunnery, torpedoing, managing an excessively large crew appearing with force in uniform, keeping ships in order in roadsteads and ports in bad weather and so forth. On the other hand, it might be necessary for naval officers to learn something of the laws relating to bottomry, stowage of cargo, working a large ship with a crew numerically weak as compared with Navy ships, as, say 20 to 1, running steam passages of from 8,000 to 22,000 miles off the reel, whatever may be weather, cargo, stowage, crew, or number of passengers. All these things may be necessary at some future day, but they are not necessary now. It may hereafter be necessary for shipowners to give the command of their ships to naval officers, but at any rate, this practice does not prevail extensively just now, whatever may be the necessities of the future. On the other hand, it may be hereafter necessary to give the command of H.M. ships, as of old, to merchant master mariners, or to soldiers. All we can say is that, thanks to the patriotism of our naval officers and gentlemen who are content to serve the State on less lucrative, though almost as uncertain, terms as a master mariner serves a large owner, this is not the case now. If it should be the case in the very remote future, it will arise from the necessities of political economy, and not from lack of patriotism. But a day will certainly come, and it will be a glorious day for our country when the State will not be able to secure the services of a sailor or soldier without competing for them by paying wages higher than the current rates paid to the class of men in the market of intellectual and physical labour. And the State ought to pay in the future if it continues to withdraw from productive labour any great percentage of the population.

On the whole, therefore, we think we are right in stating that an interchange of service between the officers and men of the Royal and Mercantile Navies is at present impossible. Political economy is against it, the law of supply and demand is fatal to it.

Having, as we think, said enough to show that the impossibility of such a change can be demonstrated, we may now proceed to consider the question of necessity. The fact is there is no necessity, because there is no need for using the whole of the sailors of the Mer-

cantile Marine on board war vessels, and because the present Royal Naval Reserves furnish more than all the men that could be wanted to man our war ships now; and as to officers, the fact that hundreds of merchant officers are unemployed, or are employed in lower grades, and the fact that the Admiralty are exercising their ingenuity in reducing the present number of naval officers and not in increasing it, are sufficient to assure us that there need be no apprehension at present that merchant ships will have to resort to the Navy for officers, or that our fighting ships will have to apply to our Mercantile Marine for them.

INTERNATIONAL AND MUNICIPAL LAW.—THE "FRANCONIA."

FERDINAND KEYN, captain of the German steamship *Franconia*, has been, as our readers are aware, convicted at the Central Criminal Court of the manslaughter of Jessie Doreas Young, one of the passengers by the *Strathclyde*. At the close of the prosecution the defendant's counsel submitted that as a question of law the defendant could not be considered amenable to the British law, inasmuch as he is a foreigner; that he was further in command of a foreign ship, and was merely proceeding upon the high seas, the general highway of nations, and was in no wise amenable to the laws of this country. The learned Judge refused to stop the case, but reserved the point for the consideration of the Court of Appeal; meanwhile the defendant is at large on bail.

We have no disposition to anticipate in any way the decision of the tribunal to which this important question has been preferred, and we trust that we shall not in any way prejudice Captain Keyn's case if we examine briefly the principles of law involved, and which will no doubt be fully discussed in the argument on the appeal.

The assertion that the master of a foreign merchant ship who injures or destroys on the high seas life or property carried by a merchant ship belonging to another State is not amenable to the tribunals of that State, rests apparently on the proposition that a merchant ship is part and parcel of the territory of the State to which such ship belongs, and that, just as a subject who in his own country commits a crime against a foreigner there, is only amenable to his own tribunals, and could not be demanded, or taken to be punished by the Executive of the foreigner's country, so the master of a merchant vessel on board his ship is regarded by International Law as in his own country, and whatever offence he may commit he can only be arraigned and dealt with by his

own laws. The doctrine of "territoriality," as applied to public ships of war, is universally admitted. "Their immunity," says Chancellor Kent, "from the exercise of any civil or criminal jurisdiction but that of the Sovereign power to which they belong is uniformly asserted, claimed, and conceded. A contrary doctrine is not to be found in any jurist or writer on the law of nations, or admitted in any treaty; and every act to the contrary has been promptly met and condemned" (Kent's Com. I, p. 156). And, in the well-known case of the schooner *Exchange*, decided in the American Courts, it was held that a public war vessel belonging to a foreign Sovereign at peace with the United States, coming into their ports and demeaning herself in a friendly manner, was exempt from the jurisdiction of the country—(1 Wheaton, p. 238). But this doctrine has been pressed, as regards merchant ships, much further at times than the jurists are content to follow. This point is dealt with very forcibly by Mr. Manning in his Commentaries on the Law of Nations (c. 6, § 1, p. 209). "The jurisdiction of the State to which the ship belongs," says this writer, "extends to the cognizance of acts committed in that ship at sea; and it is argued that this continuance of jurisdiction proves that a ship at sea is part of the territory to which she belongs." This deduction seems, in the first place, far-fetched and too flimsy to be made the basis of any serious conclusion; but, more than this, it meets with contradictions on its own terms. A ship, say the asserters of this proposition, is part of the State to which she belongs, as is evident, because at sea she is subject to its jurisdiction. Now, no nation has jurisdiction over the territory of another nation. But as soon as a merchant ship comes into the harbour of a State to which she does not belong, she becomes subject to the jurisdiction of this latter State. This shows that a merchant ship cannot be considered as part of the territory of a State, for, if she possesses this character at any time, she must possess it at all times. The fact of a ship at sea being subject to the jurisdiction of the State under whose flag she sails is a most reasonable and advantageous regulation. If not amenable to the jurisdiction of their own State, to whom would the crews of ships at sea be answerable? And if they were amenable to no tribunal, the sea would be a place where every crime might be committed with impunity. But it is difficult to imagine how it can be deduced as a consequence from this that a ship is part of the territory of her State. If this reasoning be correct, as we think it is, it follows that any exception to the British jurisdiction in the case of the *Franconia*, founded upon the doctrine of "territoriality," does not hold. The distinction, moreover, it seems to us, is very distinctly marked between the assertion of a jurisdiction by a State with respect to crimes and offences committed *on board* the ships of that State, and injuries committed *by* those ships upon person or property in other

vessels. No doubt, if Captain Keyn had killed a British subject on board the *Franconia* on the high seas, he would be amenable only to the tribunals of his own country, which, like the tribunals of other civilised States, assert a jurisdiction over their ships for the express purpose of repressing crime and preserving discipline on board those vessels. But the consequences of the collision between the *Franconia* and the *Strathclyde* do not seem to fall within the category of those matters in respect of which the German tribunals might insist upon exercising exclusive jurisdiction. It may perhaps be urged that if Captain Keyn had, after the collision and the loss of life and property which resulted therefrom, taken his ship to a German port, the German Courts might, at the instance of our Government, have called the captain of the *Franconia* to an account and have placed him on his trial. But the fact that a German Court would have been competent to investigate the case and to decree punishment in the event of a conviction, would, as it seems to us, prove nothing as against the exercise of a similar jurisdiction by a Court in this country. The *Franconia* cut down the *Strathclyde*, sank her, and drowned a number of persons on board. Whatever may be said as to the actual distance from the shore at which the collision occurred, there can be no doubt that, if not at the moment of the casualty (though this is by no means clear) in British waters, at all events immediately afterwards, the *Franconia*, her master, and crew, were within the territorial jurisdiction of this country—that is, within the three mile limit. “The sovereign power of municipal legislation,” says Wheaton (“Elements of International Law,” p. 121), “extends to the regulation of the personal rights of the citizens of the State, to the supreme police over all persons within the territory, whether citizens or not, and to all criminal offences committed by them within the same.” The three mile limit, as it has been termed, is founded on the principle, as pointed out by Bynkershoek, that the authority of the land ceases where its weapons cease to be effective :—

“Sææ potestas finitur, ubi finitur armorum vis.”

When that limit was first adopted, it was the extent of the range of a cannon shot. But, if the full application of the principle contended for by Bynkershoek be conceded, it is obvious that the three mile limit would not bound the territorial jurisdiction of the Admiralty of England in these days. It would, however, be inconvenient, and perhaps impolitic, to make any alteration now in the matter of marine territorial, and therefore the three mile limit has been to all appearance definitively adopted by this and by other maritime countries, Spain excepted. But does it not seem somewhat absurd that the exercise of jurisdiction by a competent Court should be made to depend upon whether an event occurs

half a mile nearer or further from our shores? The moment the *Franconia* was, after the collision, in British waters, the ship was liable by our law to arrest and detention until the owner or master had made satisfaction, or given security to abide the event of any suit which might be instituted in respect of the alleged injury; and this would be so in whatever part of the world the injury may have been sustained in respect of which proceedings are instituted. In our number for October last we reviewed fully the question of our Municipal Law bearing upon this point. We have not heard that these provisions of our law, and which greatly extends the jurisdiction formerly exercised by the High Court of Admiralty, have been objected to by foreign States. On the contrary, the facilities afforded by the Merchant Shipping Amendment Act of 1862 to foreign States for adopting our law of collision, and applying it, whether within or without the British jurisdiction, have been turned to good account, and tend in the direction of the establishment of a uniform system of International Maritime Law. If, then, we claim for our High Court of Admiralty a jurisdiction over injuries inflicted by foreign ships in any part of the world on British vessels—the exercise of which jurisdiction is acquiesced in by foreign States—why should the persons to whose neglect it is possible such injuries may be due, be able to sustain a plea to the jurisdiction which would be of no avail in the case of the vessels they command? Of course we should be reminded by a disputant that Municipal Law is not International Law, and that the rules of the former do not override the maxims of the latter. There may be something in the argument; but does not common sense and sound policy alike point in the direction of the assimilation of the conditions of International with those of Municipal Law? “We speak of International Law,” observed Lord Derby, in a remarkable speech delivered last year in the House of Lords, “and it is a convenient phrase; but, in the strict sense of the word, law pre-supposes the existence of a Legislature to make it, a judicial authority to declare and define it, and an executive to enforce the decisions of the tribunals. Now, in the case of that assemblage of international usages which we call International Law, all these conditions are wanting, and, as a natural consequence, it follows that, though certain leading principles are universally admitted, yet in matters of detail you have nothing like the precision and accuracy which distinguish, or at least ought to distinguish, law as framed by a national Legislature and interpreted by a national tribunal.” Where what is termed International Law is at variance with well-framed and carefully considered Municipal Law, a strong-minded jurist, such as Lord Stowell was, would not hesitate which he should adopt. We have shown, we think, that the argument in Captain Keyn’s case, so far as it relates to the “territoriality” of the

Franconia, is really untenable. As to the submission of his counsel that the captain is a foreigner, and was in command of a foreign ship proceeding upon the highway of nations—if this should form a good plea to the jurisdiction of the Court—we can only say that it would at any time be available for a shipmaster charged with piracy. It will rest with Captain Keyn's counsel to show that for the destruction of life and property on the high seas—although the wrong-doing vessels would be responsible to the law of this country—the man who commands that vessel, and who caused the mischief, although within the jurisdiction, is not amenable, and cannot be called upon in this country to answer for his conduct. If the Court of Appeal should decide upon their high authority that this is good law, we trust for the general satisfaction that the grounds of their decision will be given fully to the world. If the point taken by Serjeant Parry should hold good—which we doubt—we hope and believe that the result will hasten that assimilation of the principles and conditions of International with those of Municipal Law to which we have already adverted, and which fully carried out would be one of the greatest boons which the collective wisdom of Parliaments and of Governments could bestow upon the nations.

MERCHANT SEAMEN'S PENSION FUND.

Audi alteram partem.

THE article in the *Nautical* for April discusses the subject of a Pension Fund for the Merchant Service, not so much on the ground of political economy, as on that of common sense. I accept the platform. Your comparison between a sailor and a tailor is not very complimentary to the former, seeing that he can only be equal to the ninth part of a man; but I maintain that the sailor and the tailor are existing under very different circumstances, and that no comparison can be instituted between them.

I admit that a voluntary pension fund is entirely out of the question; I am equally adverse to a fund raised from the taxation of the country. I advocate a pension fund created by compulsory deductions made from seamen's earnings, and I do not think that such compulsory deduction would be either impossible or impolitic. To that should be added the unclaimed wages and effects of deceased seamen. The abandonment of the former Seamen's Pension Fund, or what was called the Greenwich Sixpences, was a wise measure, as the whole thing was unsatisfactory. The money deducted from seamen's wages was not applied to

their benefit, but to purposes very different ; and much of it was wasted in keeping up a monster establishment, as effete, as it was unnecessary.

The sailor is entirely different from the tailor or any other man who lives on shore ; he breathes a different atmosphere, derives no benefit from domestic life, no advantage from social influences ; the creature of circumstances, under constantly recurring excitement, from the vicissitudes of his profession, ruled by impulses of which he has no control, he is more of the nature of an overgrown child, than of a staid working man, and requires and deserves that the Government of the country should act towards him "*in loco parentis*." I assume that the writer of the article on which I am commenting is a landsman ; if so, I assert that he cannot quite understand why sailors on shore are so excited, so unreasonable, so childish, if you will. I give you the benefit of a good education before you go to sea, and of beginning your nautical career at a comparatively mature age, of the most strict up-bringing by the most judicious parents. I wish you to try a voyage, lasting over twelve or eighteen months, existing on bad, ill-cooked food, living in quarters where comfort as known on shore is totally unknown, subject to a strict, it may be an unreasonably severe discipline, and, when you get on shore, I feel sure you will feel an impulse to run riot, to spend your money without regard to the future, to get rid of it as fast as you can, and without experiencing any domestic or improving influences, to be driven to enter on board another ship, with your two months' advance forestalled. The sailor in these respects is the same now that he was over forty years ago when I went afloat. The sailor of the long voyage cannot, and does not marry with propriety. The working man on shore can, and does marry ; he surrounds himself with a family, he has no excitement to lead him astray, he receives his wages weekly, pays as he goes, becomes methodical (it may be saving), and, as years roll on, his family grow up, and are ready to afford him any assistance he may require. The sailor is different ; he has food and lodging, such as they are, provided for him, he never knows what it is to make both ends meet, to economize or save money, he is surrounded by no softening influences, has no family to assist him, becomes prematurely old, correspondingly helpless, and, through waste and want, sinks often into an early grave.

What harm can there be, what violation of any good principle, to compel this man, this child, to provide for his old age, or, if he marry, for his wife and children ? Surely a shilling a month would never be missed from his reckless expenditure when he lands, and would be saved from those harpies who prey upon him until he has nothing left.

Nor can I understand that such a deduction would be unfair to the 10 per cent. of foreign seamen who are in our Merchant Service. They join it because they derive advantages from so doing ; they are better

lodged, better fed, better treated, better paid, and under better laws in our service than in their own, if they know that a deduction from their wages will be made, they need not enter unless they please; if they choose to adopt our country and our service, and remain in it, let them become pensioners also.

The management of such a fund must be very different to the old Greenwich Fund; there must be no sinecures, no malversations. Three gentlemen, two chosen by the seamen themselves, and one appointed by the Board of Trade, with the assistance of the various local marine boards would amply suffice. The annual publication of the accounts, with the names of the beneficiaries, would create a public control, and as the amount given might in some measure be made to depend upon a man's behaviour, a guarantee would be given for the sailor's conduct that no legislation will ever produce. So far as my experience of public opinion goes, I feel certain that amongst parties themselves, sailors or shipowners, or otherwise connected with the Mercantile Marine, the feeling is in favour of a compulsory Merchant Seamen's Fund.

MEXICANO.

April 11, 1876.

THE PORTS OF LA ROCHELLE AND NANTES.

AS a maritime port, La Rochelle presents very great advantages, protected as it is from all winds by the Ile de Ré, and the Ile d'Oleron; the extensive roadsteads are safe and easy of access, and the harbour and dock can be entered with facility by day and by night. Vice-Consul Sadler states that since the dredging which was carried on from 1862 to 1865, vessels of the same tonnage can enter La Rochelle as Bordeaux, where the tide does not rise so high, and can discharge their cargoes into railway trucks alongside the quay. Besides the outer and inner harbour, there are two docks, the smaller of which, the inner one, has 5 feet 4 inches less depth of water than the outer. The outer and larger dock is connected with the station of the Orleans Railway, and that of the two Charentes by a line of rail running along the quay: both of these stations are in the immediate vicinity. The dock has an area of 7 acres 2,066 square yards, and the length of the quay surrounding it is 999 yards. The entrance sluice is 54 feet wide, and being 3 feet below the level of the lowest tide, the depth of water in the dock is as follows:—18 feet at neaptides,

21 feet 11 inches at springtides, and 24 feet $2\frac{1}{2}$ inches at equinoctial tides. The port possesses at present no dry dock, but a gridiron of 196 feet in length is placed gratuitously at the disposal of all ships frequenting the port. The draught of water of the unladen vessels which can be placed on this gridiron is 6 feet $2\frac{1}{2}$ inches at neaptides, 10 feet $1\frac{1}{2}$ inches at springtides, and 12 feet 5 inches at equinoctial tides, as the upper surface of the stocks upon which the keel is placed is 11 feet $9\frac{1}{4}$ inches above the level of the bottom of the dock. During the year 1874 the dock was cleansed of the deposit, which in the space of six years had accumulated to the depth of $37\frac{1}{4}$ inches.

Cognac is now in direct railway communication with La Rochelle, and were the advantages of this port more fully taken into consideration, the brandies which are now sent down the river from Cognac, and reshipped at Tonnay-Charente, could more easily be conveyed by rail and shipped at La Rochelle, where vessels are not subject to the delay and inconveniences of passing a naval port like Rochefort. Pending the development of plans which will one day admit of the largest transatlantic steamers entering the port of La Rochelle—namely, the deepening and widening the channel, and the creation of a new floating dock, for which a large tract of marshland owned by the Government, adjoining the present dock, and of little present value, affords unusual facility—large steamers could take advantage of excellent moorings in 5 or $5\frac{1}{4}$ fathoms at lowest tide which exist in the direct channel within five miles of the dock, or could lay inside the Ile de Ré. Buoys to which these vessels could be moored might be easily placed, and by means of small steamers passengers and merchandise could be embarked or landed at small expense, and thus avoid the dangers of the entrance to the river at Bordeaux, from which place La Rochelle is distant but 6 hours 43 minutes by rail.

In the extent of its fisheries, La Rochelle ranks about twelfth among the ports of France, but it derives much additional importance from the fact that the larger boats belonging to Dieppe, Trouville, Fécamp, and other ports, to the number annually of about 150, frequent the port on account of the greater safety of the harbour, and because they are not subject to the same losses and damage as on the more rocky fisheries of the channel. In 1873, 321 boats were engaged in the various fisheries, with an aggregate burthen of 2,380 tons, manned by 748 men, while nearly 3,700 men are employed in the shore fisheries.

Little else is cultivated in the neighbourhood beyond wheat and vines, with here and there patches of oats, barley, and rapeseed. Large quantities of the wine grown in the district are sent to Paris for mixture with the stronger wines of the south, and then qualified as Bordeaux, while a small quantity is exported. The condition of the working class

is good, and wages have risen one-third within the last ten years. Articles of consumption in general have increased from 30 to 40 per cent. in fifteen years, while meat has nearly doubled in price during that time. The population is 19,506, of which about 1,000 are Protestants; that of the department of Charente Inférieure is 465,658, of which number about 18,000 are Protestants.

At Nantes there were general complaints about the stagnation in business, which do not seem justified by the Custom House returns; but in the opinion of Consul Clipperton they arise from increasing competition which provides a sufficiency for the many instead of large fortunes for the few. Considering coal to be the basis of all industrial operations, the importation of this commodity proves that the demand has been great, the returns for 1874 showing an increase of upwards of 28,000 tons over the imports of the previous year. The carrying trade in British ships was also larger than in 1873, which, in consequence of almost the entire importations of guano having been carried in French bottoms, was expected to have fallen off at St. Nazaire in tonnage if not in number. Sugar transactions are generally considered the chief and most important on change at Nantes. The quantities refined during 1874 were 54,793,000 kilogs., and the exports have increased yearly to England, which is far beyond other countries the largest buyer in the Nantes market. Coals form the next important branch of the trade, the carrying of which procures continual employment and remuneration to the majority of French vessels sailing from Nantes. The certainty of this trade has induced many seafaring men, such as "capitaines au cabotage," to invest their savings in vessels to sail between Cardiff and Nantes, St. Nazaire, or other French ports, generally clearing in ballast to return with coal. The other branches show similar satisfactory results, with the exception of the sardine trade, which has suffered from the frauds that have been practised. With the view to protect buyers in future from contractors exporting a bad article at very cheap rates, steps have lately been taken to form a syndicate, who will have powers to grant a mark or certificate. Until further guarantees are offered, buyers of sardines à l'huile are recommended to ask for the mark of Messrs. Phillippe & Co., Louis Levesque, or Blon and Charbonier.

Owing to the financial state of France since 1872, the Government has only been enabled to allot an insufficient sum for the completion of the docks at St. Nazaire. In its present state, the port of St. Nazaire is composed of a small tidal harbour formed by a stone breakwater, chiefly used by the pilot boats attached to the mouth of the Loire, and a floating dock, constructed according to the authorisation of Government in 1845. This dock was opened in December, 1856, and has a superficial area of 1,054 ares (27½ acres). The extent of the quays is 1,604 metres, of

which 264 metres are reserved for the use of Government vessels, but allowed to be used by merchantmen when unoccupied. Another quay, measuring 160 metres, taken up to a great extent by sluices and dock-gates at the entrance of a second dock in construction, and 1,180 metres of quays for trade purposes, 310 metres of which are exclusively occupied by the warehouses and workshops belonging to the Transatlantic Steamship Company. Shortly after the opening, this dock was found to be insufficient for the requirements of an increasing trade, and a decree, dated August, 1861, authorised the construction of a second dock, in continuation of the first. This new dock is to have a superficial area of 2,245 ares, with 2,145 metres of quays, and 350 metres with piers, and paved especially for discharging timber-laden vessels. It does not appear to be generally known to the shipping community having from time to time interests in this coast that there is at Paimboeuf, on the left bank of the Loire, about five miles above St. Nazaire, a dry dock, offering ample and complete facilities for repairing vessels. This dock is let by Messrs. Jollet and Babin, iron shipbuilders of the highest standing, and thoroughly to be relied on. It has a disposable length of 79 metres, and 16 metres breadth. At spring-tides there are 5·20 metres of water over the sill, and 4·20 metres during the neap-tides. The charges made are very reasonable, and a considerable economy is found by vessels using it either for repairing or cleaning.

The department of the Loire Inférieure is one of the most important in France in regard to its wine produce. On the left bank of the river, there are upwards of 80,000 hectares of vineyards, while above Nantes both banks are well covered with vines. Unfortunately, owing to the northern position of the Department, the vines are subject to attacks from frost; but should the flowering and early season be got over favourably, the crop may be considered to belong to the fifth or sixth degree in importance, according to the quantity of grapes. Three qualities of white grapes are grown—viz., Le Gros Plant, Le Muscadet, and Le Pineau. The Gros Plant produces a hard, rough, and sharp wine, chiefly used for making an excellent quality of vinegar, known as the "Vinaigre d'Orleans." The Muscadet gives a light, delicate, and very agreeable wine, where the vines are planted on hills well exposed to the sun and air; and it must also be added, when the proprietor understands how to look after them properly. The Pineau has more body, but is not considered so delicate in taste as good Muscadet. For several years past, attempts have been made to grow the red grape, but as yet the results have not shown a complete success.

“ SHIPPING LEGISLATION.” *

IN our last number we made some reference to an article which appeared in *Engineering*, on the subject of “Un-classed Ships,” being one of a series upon “Shipping Legislation.” The whole has since been published in the form of a pamphlet. The writer has stated the case for the so-called “prevention policy” with much clearness and force, and has, we think, said as much as could be said for his side of the question. We will not take up space by following him in his history of the question, further than to remind our readers that legislation, in reference to unseaworthy ships, began before “Our Seamen—an Appeal”—was published, and that the principles which have hitherto guided such legislation, were also propounded and strongly advocated in these pages before the “early part of 1873,” at which date he appears to think the question was first started. Mr. Fortescue’s Act of 1871 was the point of departure from the former system of paternal legislation. The old plan of Government inspection and Government responsibility was then first set aside in favour of the new system of fixing responsibility on the shipowner, supplemented by a merely police supervision by the Government.

We are rather surprised that a writer who so well understands the whole question, as does the author of this pamphlet, should think it worth while to affect astonishment at the want of cohesion between shipowners. He notes, as something remarkable, that—“One deputation has gone to the Board of Trade to advocate a certain line of policy, and shortly afterwards we have heard of another deputation, supposed to represent identical interests, advocating quite a different policy.” The misconception we take it is, that the interests of all classes of shipowners are identical. We know that this has been constantly assumed of late, so much so, indeed, that shipowners who support the agitation supposed to be directed against their own order, are praised as honest and honourable men, and those who oppose it are set down as “black sheep.” To our mind there is no greater mistake than to suppose that the interests of shipowners generally are identical. As well might it be said that the interest of the Whitechapel tradesman, who pays his rents and rates for a large shop with plate-glass windows, is identical with his brother of the barrow and donkey. We have again and again pointed out that it is to the direct interest of a large class of shipowners that shipping generally should be subjected to such harassing and worry by Government interference as to drive the small shipowner out of the

* “Shipping Legislation,” reprinted from *Engineering*, London, 1876.

carrying trade altogether. Passenger vessels are subject to a number of minute and troublesome restrictions ; they would not be placed at any additional disadvantage by any proposed legislation ; but such legislation would very much interfere with other vessels, and thus competition in the carrying trade would be lessened, and freights raised. What if a considerable trade be driven into the hands of foreigners? the owners of passenger ships would still be benefited. If the "Costermongers of the Seas," as they have been called, are driven off the sea, part of their work may go to foreigners, but part of it must come with enhanced profits to the wealthy shipowner. It is because we should regret to see our shipping altogether in the hands of large firms that we oppose a policy which would improve the small shipowner off the sea altogether, to the great injury of the hardworking shipmaster, whose chief chance of advancement is to become a small shipowner, and to the detriment of the country at large.

In the writer's treatment of the load-line question, we see evidence that he appreciates the force of many of the arguments with which we have from time to time combated proposals for a hard and fast line. That which was at one time thought such a simple and easy task is now admitted by all to be most difficult. In former articles we have traced the gradual enlightenment which has dawned upon the out-and-out advocates of a hard and fast line who believed the whole thing was so easy that any Government could settle the question if they had but the will. The first rules proposed were so beautifully simple, that a schoolboy might determine the freeboard of any ship ; each successive scheme bore evidence of the gradual enlightenment of its author, and now we are told that a load-line should be settled for the shipowner by *experts*. "Evidently," says the writer, "an extensive knowledge of the construction of the Mercantile Marine would be required by whoever were entrusted with the work, and questions of the most difficult nature regarding the strength, buoyancy, and stability of all types of ships, as well as their behaviour at sea, would have to be considered with the utmost care, because the decisions would have to be based on sound principles, and be consistent with each other, or they would be unable to bear the searching criticism sure to be applied to them ; and unless they could do this, the whole scheme would break down." Such has, indeed, been the fate of all proposed rules of freeboard, not one of them has been able to stand criticism, nor are so-called *experts* agreed as to the principles upon which any rule should be based. It is pretty generally recognised that a percentage of volume above water is the most important element in comparing ships as to freeboard, and it is an equally general opinion that the percentage should vary in different classes of ships. When we have reached this point, however, we must stop, for as to what kinds of vessels require a larger

percentage, there is the greatest divergence of opinion. Thus Mr. Martell's rules require a large percentage for large ships, the depth being the dimension taken to indicate the size of the vessel, an addition to the freeboard however being made when the length is excessive as compared with the breadth. Mr. Rundell's scheme on the other hand merely increases the percentage in accordance with the ratio of length to depth. We believe, as we have often stated, that Government should not fix freeboard; but if we inclined to the contrary opinion, we do not think there is sufficient data upon which to found rules.

We do think, however, that to facilitate the finding of freeboard in terms of percentage of buoyancy the position of the water-lines, which cut off 20 and 80 per cent. of the volume below the upper deck, should be calculated for every new vessel, and recorded in some way so that they would be accessible to the owner and to the Board of Trade officers who may have to deal with the ship. Such data would be merely records of fact, and not of opinion, and would be most useful to the owner, as furnishing him with the means of regulating his freeboard upon the basis of past experience, a percentage of volume being undoubtedly the best *measure* of freeboard.

The writer of the pamphlet is at a loss to understand what good can have been effected by the "owner's load-line," and appears to think that it is practically inoperative. He appears to come to this conclusion chiefly because shipowners have to a large extent marked their ships with a much deeper load-line than they ever intend to load to. We know that such is the case, especially with steamers, many of which may be seen every day leaving our great coal ports with discs many inches above the water; but while we acknowledge the fact, we must dispute the inference. In the first place, however, we must confess that the owner's mark is in one sense a failure. It was said that sailors would often not go to sea in overladen ships, if they only knew beforehand the depth to which the vessel was to be laden. Melting pictures were drawn of the seaman entrapped into signing articles, and then seeing the ship so overladen that he was going to complete his engagement at the risk of his life, and had only the alternative of a prison. If he only knew what the vessel was to be loaded to, he would never have undertaken the fearful risk. Now, the position of the load-line is read out to the crew when they sign articles, and we venture to affirm that, if one were to meet a newly-engaged crew at the shipping-office door, and offer a five pound note for a statement of the position of the mark, not one, from the chief officer to cabin-boy, would claim the money. So long as the ship's loading offered a chance of a pretext for complaint Jack grumbled and complained; now, when he has it put fairly before him, he cares not even though it be level with the

upper deck. For all this, however, we believe the owner's mark has done very much good, and will do more. Some owners have, out of bravado, placed the mark ridiculously high; others have, we believe, placed it high with the intention of loading deep on the homeward voyage, when there is nobody to watch them. But we think, notwithstanding all this, that when owners realise their true position, they will pretty generally cause the mark to be a fair expression of their intention. For one thing, it should be remembered that, in the absence of clear and reliable testimony to the contrary, such as the record of a Board of Trade draught officer, it will be believed that the vessel was loaded to the mark, and then, in case of loss, the owner will be responsible for overloading. There is undeniable evidence that gross overloading on outward voyages is now a matter of rare occurrence; and we would suggest that if the freeboard of vessels entering ports were measured, the statistics published for the information of underwriters, and prosecutions instituted in any very gross cases, good results would follow. The legislation of last session has certainly not yet had a fair trial, and we think it would be most unwise to repeal it in favour of a totally different system, especially when it is admitted, as the writer of "Shipping Legislation" admits, that gross cases of overloading are now comparatively rare. He appears to believe, however, that ships generally are loaded deeper than they were a few years ago. We cannot follow him in this, and until he brings forward facts to support his statement, we must rather take the general opinion, which is, that vessels generally are not loaded so deeply as a few years ago. It must, however, be remembered that owners have now a special inducement to cut as closely as they can to the limits of safety. At all of our large ports we see steamers laid up for want of employment, and in many more cases they are only kept going by the extra freight from the last inch or two of immersion. An inch or two may seem very little in a vessel's freeboard, but it must be remembered that the vessel's expenses are the same, however she be loaded, and the last inch is often the profit on the run. While, therefore, we would severely punish owners for criminal overloading, and inflict the milder punishment of detention for dangerous loading, which at the same time is not palpably criminal, we think the shipowner and the captain should, within reasonable limits, decide for themselves. It is their business to know the capabilities of the vessel, or to take the opinion of some competent person who does know; let them feel this responsibility, and, at the same time, know that they have an efficient check upon them if they abuse their powers and ignore their responsibility.

It must be regretted that while our own shipowners are subject to so much restriction, foreign vessels come to our large ports with notoriously bad ships, and load them just as they like. Anyone looking over

the list of departures from a large port, can see clearly enough that a great part of our export trade is passing into the hands of foreigners. We believe that these evils would be much intensified by the adoption of a hard and fast load-line, and whatever might be its effect for a time, it would ultimately do very much harm. Any authority, whether a committee or a Government department, which had to determine load-lines, must of necessity lay down rules for its guidance. Such rules might be made to take in many elements of the question, but when they became known, ships would certainly be built to evade them, and then the owner, by a literal compliance with them, shifts the responsibility from his own shoulders to those of the framers of the rules. Thus the only thing gained in the end would be that designers of ships would be cramped and fettered.

A large portion of the pamphlet is taken up with a description of the management and *modus operandi* of the English registries of shipping. In our last month's article, we exposed the fallacy of the process of reasoning by which 3,500 sea-going vessels are concluded to be un-seaworthy, merely because they are not classed at Lloyd's. Since that, we have noticed that it has been broadly stated at public meetings that there is that number of vessels afloat which are rotten and unseaworthy, and that legislation is urgently needed to stop them. To support this statement, is in the first place adduced the Board of Trade return, by which it appears that out of 418 vessels reported to the Board by its own officials, 406 proved unseaworthy. "They were," the writer goes on to state, "all unclassified ships. How many hundreds more, equally unseaworthy, might have been stopped if unclassified ships had all been placed under survey? but few, we suppose, will contend that where 406 out of 418 ships proved unseaworthy, there would not have been a great many more found unseaworthy out of 3,500 if they had all been examined." It is thus made to appear as if 418 vessels were picked out at random for examination, and that as thirty-four out of every thirty-five proved unseaworthy, it may be assumed generally, that thirty-four thirty-fifths of unclassified vessels are unseaworthy. Than such an inference nothing can be more fallacious. In the first place the vessels are only reported, because, in the opinion of the officer reporting them, there is reason to believe them unseaworthy; and the return proves just this much—that in twelve cases the surveyor's opinion was not well-grounded, or, as we have said before, the Board of Trade surveyors in that year made twelve mistakes. The writer quite ignores the fact that a very much larger number of vessels than 418 were looked at with reference to seaworthiness. False information may be received, or some suspicious circumstance may direct attention to a vessel. If on such an examination being made as can be made without delaying or

injuring the vessel, there appears to be no reason for suspicion, the case of necessity must be dropped, and of course these vessels do not appear in the return. There are, in truth, two siftings; only those which go through the first are reported; those which escaped in the second are the twelve mistakes. Further, the unseaworthies are not, as is assumed, all unclassified ships. We do not doubt that the majority are; as to how large the majority is, in the absence of thoroughly reliable information, we should hesitate to express an opinion. By *unclassified* vessels are meant those not classed in Lloyd's or the Liverpool Registry. In our last we adverted to the exclusion of the foreign and colonial registries, and we observe that in the pamphlet a foot-note has been introduced, giving a reason for such exclusion. It runs thus:—"We omit the Bureau Veritas, because, in the first place, it is a private trading concern, worked purely as a commercial speculation by Mr. Charles Bal, its proprietor; secondly, because it has little or no influence on British shipping; and, thirdly, because it is conducted abroad, and could not be influenced by British public opinion and sentiment." Now we certainly cannot see that the certificates of a registry are valueless, because it is managed as a commercial speculation; on the contrary, their genuineness and the degree of reliance which can be placed in them must be the measure of the success of the registry. If a class in any registry indicates nothing, or next to nothing, of the condition of the ship, underwriters will not consult such register, and it certainly cannot become a commercial success. Lloyd's has attained its present high position, not in virtue of its constitution, but because of the excellence of its practical work. It, like *Veritas*, has been subject to temptations, and has not always stood upright. Everyone knows that some years ago when the Liverpool Underwriters' Registry was started, Lloyd's reduced their scantlings because business appeared to be leaving them, and that since that time they have increased them again, finding that they had gone too far. If they really were a public body, caring for nothing but the interests of shipping, they would have ignored the existence of rival registries, and have kept their own high position regardless of fear or favour. Statistics are given to prove that as it is nine-tenths of vessels building in Great Britain and Ireland at present are being built to class at Lloyd's, and that hence it would be no great hardship if the entire control of shipbuilding were handed over to them. In these statistics we observe a most important omission—we are not told the number of vessels built in the colonies under Lloyd's. When it is remembered what a very large number of wooden ships of all sizes are now built in the colonies, whereas it is a rare thing to hear of the launch of a wooden ship of over 500 tons from an English yard, it will be seen that a most important element has been left out. In this connection we would

refer our readers to the Appendix to the Minutes of Evidence before the Royal Commission, in which there is printed the petition of the St. John's, N.B., Board of Trade to the Governor-General of the Dominion. They state that "for some years past the largest proportion of vessels built in New Brunswick and Nova Scotia have been constructed under the inspection of the surveyors of the Society of Bureau Veritas, and that not less than four-fifths of the vessels classed in the two provinces named are in the books of that society." Mr. Smith, the Deputy Minister of Marine in Canada, also states, in an article in the last number of this magazine, that a majority of vessels built in the Dominion are classed in Veritas, except in P.E. Island, where nearly all are built under Lloyd's. We cannot see how in any legislation affecting the whole of the British Mercantile Marine, Lloyd's can be recognised as being in a higher position than any other registry. If it be proved, which has not been yet done, that all merchant ships ought to be periodically surveyed, then Government themselves must undertake the survey. It has been said that the Board of Trade might have a control over the rules of the registries, and thus would effectively control their action. We think that the rules of registries are a secondary matter; the *personnel* of the surveying staff is the most important thing, and how can Government entrust surveyors with power to issue such important documents as certificates of seaworthiness unless such surveyors are directly responsible to, and are controlled by, the Board of Trade. To say that Lloyd's does its work admirably is no guarantee that when placed in an irresponsible and independent position it will do the work of certifying to unseaworthiness equally well. Its certificates have now a commercial value, that value depending upon their intrinsic merit. How would it be if a class at Lloyd's were sought merely because the law required it?

The writer in contrasting the administration of Lloyd's with the Board of Trade, triumphantly asks:—"What influence has the Board of Trade exercised on the *matériel* of the Mercantile Marine during the last forty years which embraces the period of its greatest development, and also the great transition stages from wood to iron, and from sailing ships to steamers. The answer is, absolutely none with the exception. . . ."

We believe on the contrary, that the Board of Trade has during that period done one thing which more than any other has contributed to the prosperity of the Mercantile Marine. We refer to the new tonnage laws, and we believe that their effect has been much more beneficial than all the action of Lloyd's during the same period. By those laws, all inducement was removed for shipowners to build vessels of such dimensions as to evade the law, and the consequence has been that since then, the designer has been able to study merely the purpose for which the

vessel is intended, and has not had to restrict himself to obtain a low tonnage. Our Mercantile Marine can never be developed and improved by any Government interference : such interference is always an evil, though often a necessary one. The new tonnage laws removed the chains from our Mercantile Marine. There is now a strong tendency to put it in fetters again, but we hope that Parliament will not take a step so opposed to our modern ideas of the true functions of Government, but will leave private enterprise unhampered, and thus do the most that the State can do to foster the development of that industry to which England owes so much of her greatness. We have not space to follow the writer in his criticism of the Government proposal for courts of survey. Much of what is said on this head is just, though all through this, as well as the whole of the pamphlet, there is present the leading idea, that in Lloyd's alone can safety be found, and that if only the authorities of that institution were invested with absolute authority over our merchant ships, all the ills under which we now suffer would speedily disappear, the sea would lose its terrors, and the storm its power.

STATE AID FOR IRISH FISHERIES.

BOTH Irishmen and Englishmen may congratulate themselves upon the defeat of the measure brought forward by the hon. member for Galway borough (Dr. Ward), for the protection of Irish fisheries. Had the "Coast and Deep Sea Fisheries (Ireland) Bill" become law, Ireland would have been deprived of a grievance without having gained anything in return, while England would have found herself reverting to a system of protection that is well known to be as useless in practice as it is unsound in theory. By the supporters of the above-mentioned Bill, however, it was urged that the laws of political economy must not be strictly applied in the case of Ireland. That country has been misgoverned in the past, therefore we must not object to treat her exceptionally until we have compelled her to become prosperous. But if it is allowed that this kind of argument may be used, it is difficult to see where the line is to be drawn, or to specify the length of the period which must elapse before a people may be expected to help themselves. We have certainly heard a great deal about Irish wrongs within the last few years, but we question whether many people are aware that "for a long period there has been a systematic crushing out of the Irish fisheries in the interest of British fisheries." Yet these are the words used by Dr. Ward in moving the

second reading of the Irish Fisheries Bill. As far as we can judge, this opinion seems to be based on the fact that Irish fisheries decline while British fisheries prosper; and, viewed in one sense, Dr. Ward's theory is certainly not without foundation. But the "crushing out" is neither systematic, nor is it the result of aid given unfairly by the State.

It is now nearly fifty years since the bounty system was abolished both in England and Ireland, and fifty years would seem a fair period for testing the soundness of any branch of industry. During that time fisheries have steadily prospered on this side of the Irish Sea, while on the other they have gone just as steadily from bad to worse; and taking the present condition of affairs into consideration, together with the length of time that has elapsed since all public aid was withdrawn, it can hardly be considered reasonable to attribute the prosperity on the one hand, or the decline on the other, to State interference during the last generation. The herring fisheries of Yarmouth, the fisheries of the north-east coast, and the pilchard fisheries of Devon and Cornwall, have not thrived in consequence of any bolstering they have received from the Imperial Exchequer. They have simply created themselves, as all industries must do that are worth creating. Sir J. Elphinstone struck the right note in drawing a comparison between Irish and Scotch fishermen. As he truly pointed out, no Act of Parliament can change the habits of a people, or make men go to sea to earn their bread, if they do not choose to do so, and that if Irish fishermen had developed their thaws and sinews, with exertions like those of the Scotch fishermen, they would now be equally prosperous. This is precisely where the real, in fact the only difficulty lies. There are large numbers of persons in the world who find wailing over their troubles and wrongs a far more congenial occupation than setting their shoulders to the wheel, and, unfortunately for Ireland, she is cursed with far more than her share of these worthless individuals. Her seas are teeming with fish, it is true, but the fish will not come on shore without being caught. This latter process, however, involves a certain amount of hard work, together with some degree of thrift, in order that the necessary boats and nets may be procured; and here it is that the real Irish grievance comes in, for thrift and hard work are not always congenial to Irish tastes. There is something refreshing in the cool manner in which the Government are asked to relieve Irish fishermen of the trouble of earning and purchasing their outfit. Because bounties were granted in Scotland sixty or seventy years ago, and Scotch fisheries have thrived, it is argued that their prosperity is due to the bounties, and Parliament is asked to revive the wretched system of fostering particular industries by imperial grants. Those who plead in this strain appear to ignore the possibility that Scotch fisheries might have flourished in the absence of bounties, while they

omit to explain why the bounty system, which was in force in Ireland, as well as in Scotland, until 1830, should not have had as favourable an effect in one country as in the other. It is too much perhaps to expect Irishmen to recognise wherein the cause of the difference lies ; but those who are at all acquainted with the difference between Scotch and Irish peasants will have no difficulty in finding an explanation of the apparent anomaly. If a colony of penniless Scotchmen were planted on the west coast of Ireland, they would have established a regular export trade in fish within twenty years from their first arrival ; but Irishmen are accustomed to proceed in a somewhat different style. It is the same with their fisheries as with everything else. They begin by groaning under the tyranny and injustice of England, and by drawing attention to the ills brought upon them by the potato famine of 1846, and end by calling on the Government to legislate them into prosperity. In this case the Government is asked to appoint commissioners and licensing officers, to provide piers and harbours, to appoint superintendents to notify the positions of the shoals of fish, to lend money to fishermen, and, in short, to do everything except actually catch the fish. It is presumed that the Irish fishermen themselves would condescend to perform this last operation when all the preliminary arrangements were complete ; but whether experience would justify even this supposition is in our opinion extremely doubtful.

The only shadow of reason that can be brought forward in favour of Dr. Ward's Bill is to be found in the plea for the extension of the Scotch branding system to Ireland. But this would be of more than doubtful utility—even on the supposition that the brand is an advantage to Scotland. If there be an advantage, it must rest solely in the foreign trade ; but as the whole of the produce of the Irish fisheries can easily be disposed of in the United Kingdom, the brand could be of little use to Ireland. For our own part, we have no faith whatever in official branding, whether in Scotland or Ireland. It is unsound in theory and unfair in practice, being nothing more nor less than a direct interference with free competition. “ Good wine needs no bush,” says the proverb ; and good fish require no brands. The member for Kinsale was willing to allow that Ireland could expect to derive but little benefit from the branding system, and that the loans to fishermen formed the main point in the Bill. But Mr. Butt was of a different opinion. According to his ideas, Ireland has been beaten out of the foreign market solely by the Scotch brand. He omitted to say at what period Ireland had possession of any foreign market, but went on to insist that the difference between Scotch and Irish fisheries arose from one nation having been systematically favoured, while the other has been ignored. As a last appeal, Mr. Butt “ trusted that the small grant of £20,000 would not be refused, for

even if it did not revive the Irish fisheries, it would effect a valuable purpose in teaching Irishmen that it was not the fault of Englishmen if these fisheries declined." There is something novel about this proposal ; but we question whether any number of lessons given even in this style would convince either the hon. member for Limerick or his supporters that English injustice does not lie at the bottom of every misfortune with which Ireland is troubled. However, there is not much likelihood that the Government will make such an experiment. We should regret to see a return to a system that has been exploded more than a generation since, even on the plea of forcing Irish fisheries into a more prosperous state, but we should object much more strongly to launching on any attempt to convince Irishmen that they themselves are at all responsible for the backward condition of their country. We have no wish to embark on the troubled sea of Irish politics, but we may perhaps venture to suggest whether the exceptional legislation of which Ireland is so constantly being made the subject, is not calculated to foster among her people the fatal idea that laws, rather than men, constitute the chief motive power in the growth of nations. We congratulate ourselves that, in this case, the Government met the proposal to extend this system of legislative nursing by a firm refusal. The Irish seas are swarming with fish, and markets for any quantity of fish that may be caught are close at hand ; if Irish fishermen cannot draw a moral from these simple facts we are sorry for them, but we should object to seeing even £20,000 per annum expended for the purpose of showing them what they signify.

RULE OF THE ROAD AT SEA.

HER Majesty's Ministers have lost little time in taking serious steps for securing a reconsideration of the International Steering and Sailing Rules. So many suggestions had been made for their amendment and alteration, and many of them, though quite wrong and dangerous, had been urged and pushed forward with so much persistency, that the Government felt itself bound to do something. In a Parliamentary Paper, No. 353, of Session 1874, most of the suggestions for alteration will be found, and the gist of these are admirably summed up and sifted in a paper reprinted in our number for December of that year.

In the present instance, the Government, instead of leaving one or two officials to bear the responsibility, and the consequent harassment and

abuse that would have been attendant on any individual effort to have taken the subject in hand, have, wisely for themselves and their officers, shifted the whole responsibility on to the shoulders of an Inter-departmental Committee.

We have always maintained that, so soon as the time should arrive when the Steering and Sailing Rules for Steamers should have the benefit of receiving calm and careful consideration at the hands of a competent committee, the lines of those rules would be more firmly established than ever, and, at the same time, and as a consequence, that the absurdities which have cropped up, session after session, as amendments to be proposed by the Right Hon. Sir J. C. D. Hay, Bart., M.P., would meet their deserved fate.

Both of these predictions have been fulfilled. The principles of the rules referred to have been re-affirmed, and such amendments as the Committee have thought fit to propose, do not involve any serious or fundamental alteration of the existing rules.

The Committee, who have signed the Report in alphabetical order, consisted of the late Sir Frederick Arrow, master mariner, then Deputy Master of the Trinity House; Admiral G. A. Bedford, the professional adviser of the Harbour Department of the Board of Trade; Capt. F. J. O. Evans, R.N., the Hydrographer of the Admiralty; T. H. Farrer, the Principal Permanent Secretary of the Board of Trade; Thomas Gray, the Assistant-Secretary of the Marine Department, and the author of the "Rule of the Road in Rhyme;" H. C. Rothery, the learned Registrar of the Admiralty division of the High Court of Justice; Capt. Digby Murray, master mariner, professional adviser to the Marine Department; and Capt. C. G. Weller, also a master mariner, and an Elder Brother of the Corporation of Trinity House.

The Committee therefore consisted of two officers of the Royal Navy, three masters in the Merchant Service, two lawyers, and one Civil officer.

Their Report is as follows:—

REPORT OF COMMITTEE APPOINTED BY THE ADMIRALTY, THE BOARD OF TRADE, AND THE TRINITY HOUSE, TO CONSIDER THE REGULATIONS FOR PREVENTING COLLISIONS AT SEA.

We have carefully considered the various suggestions which are contained in the documents published in Parliamentary Paper, No. 353, of 1874, and especially alterations in the existing rules proposed by the French Government; and we have also, through the Board of Trade, obtained information from the masters of Transatlantic steamers concerning a system of sound signals used by steamers on the coasts and in the rivers of the United States. We have unanimously agreed to recom-

mend the accompanying amended draft regulations in lieu of those now in force. The consent of other nations will of course be necessary.

It will be observed that our amendments do not involve any serious or fundamental alteration of the existing rules. We consider it of great importance that these rules, which are now well understood, should continue unaltered in substance; but there are some points in which they require elucidation, and there are other points on which our own experience and the suggestions above referred to have shown that additions are necessary, and it is for these that we have endeavoured to provide.

The principle amendments are the following :—

Art. 3, par. (a), provision is made for placing the white light of steamers not only at the masthead, but at any proper place before the mast. This is rendered necessary by legal opinions as to the meaning of the present regulations.

Art. 5, which provides signals for ships laying telegraph cables or otherwise not under command.

Art. 9, which removes a doubt as to the lights to be carried by pilot vessels.

Art. 10, which provides signal lights for drift net fishers and trawlers, and puts an end to the conflict between the existing regulations and those annexed to the Sea Fisheries Act, 1868.

Art. 11, which makes it clearly lawful for overtaken vessels to show a light a-stern. This article is suggested in consequence of doubts as to the legality of so doing having been expressed in cases recently heard by the High Court of Admiralty and the Court of Appeal.

Art. 12, which, besides defining sound signals more distinctly, and shortening the intervals at which they are to be made, requires a sailing ship in fog to denote her tack by her fog-horn.

Art. 14, which is re-written so as to make the meaning more distinct.

Art. 15, in which, in order to meet the practice of other nations, words are added to make it clear that the English term "port helm" is equivalent to altering the course of the ship to starboard, and *vice versa*.

Art. 19, by which, following a practice successfully adopted in the United States, steamers are enabled to indicate to an approaching ship the direction they are about to take.

Art. 21, which adopts the general statutory rule that existed before 1862 for steamships navigating narrow channels, viz., that each ship shall keep to the starboard side of the mid-channel.

Art. 25, which reserves special and local rules lawfully made by harbour authorities.

The remainder of the alterations are verbal merely.

We annex to our Report copies—

1. Of the rules as we propose to amend them.
2. Of the present rules unaltered.
3. Of the information we have received concerning sound signals in the United States.

(Signed)	F. ARROW.	T. GRAY.
	G. A. BEDFORD.	D. MURRAY.
	F. J. O. EVANS.	H. C. ROTHERY.
	T. H. FARRER.	C. G. WELLER.

Principal Enclosure in above Report.

DRAFT OF REGULATIONS FOR PREVENTING COLLISIONS AT SEA, WITH AMENDMENTS PROPOSED BY THE COMMITTEE APPOINTED BY THE ADMIRALTY, BOARD OF TRADE, AND TRINITY HOUSE, JULY, 1875.

Preliminary.

Art. 1.—In the following rules, every steamship which is under sail and not under steam is to be considered a sailing ship; and every steamship which is under steam, whether under sail or not, is to be considered a ship under steam.

Rules Concerning Lights.

Art. 2.—*Lights.*—The lights mentioned in the following articles, numbered 3, 4, 5, 6, 7, 8, 9, and 10, and no others, shall be carried in all weathers, from sunset to sunrise.

Art. 3.—A sea-going steamship when under way shall carry—

(a.)—*Lights for Steamships.*—At, or in front of,* but not less than 20 feet above the foremast head, a bright white light, so constructed as to show a uniform and unbroken light over an arc of the horizon of 3 points of the compass; so fixed as to throw the light 1 mile ahead of the ship, viz., from right a-head to 2 points abaft the beam; and of such a character as to be visible in clear weather, at a distance of at least 2 miles.

(b.) On the starboard side, a green light, so constructed as to show a uniform and unbroken light over an arc of the horizon of 3 points of the compass, so fixed as to throw the light 1 mile ahead of the beam on the starboard side; and of such a character as to be visible on a dark night, with the aid of telescopic instruments, at least 2 miles:

(c.) On the port side, a red light, so constructed as to show an uniform and unbroken light over an arc of the horizon of 10 points of the compass, so fixed as to throw the light from right a-head to 2 points abaft the beam on the port side, and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least 2 miles.

(d.) The said green and red side lights shall be fitted with inboard screens projecting at least 3 feet forward from the light, so as to prevent these lights from being seen across the bow.

Art. 4.—*Lights for Steam-tugs*.—A steamship, when towing another ship, shall, in addition to her side lights, carry two bright white masthead lights in a vertical line, one over the other, not less than 3 feet apart, so as to distinguish her from other steamships. Each of these masthead lights shall be of the same construction and character as the masthead lights which other steamships are required to carry.

Art. 5.—*Day and Night Signals for Steamships not under Command*.—The following ships, viz. :—

A steamship laying or picking up a telegraph cable.

A steamship which, in consequence of accident to her machinery, or steering gear, or for any other reason, is not under command :
Shall by day carry in a vertical line, one over the other, not less than 3 feet apart, in front of but not lower than her foremast head, 3 black balls or shapes, each 2 feet in diameter ; and shall at night carry in place of her masthead light 3 red lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line, one over the other, not less than 3 feet apart.

These shapes and lights are to be taken by approaching ships as signals that the ship using them is not under command, and cannot therefore get out of the way.

The above ships, when not making any way through the water, shall not carry the side lights, but when making way shall carry them.—(Article 5 is new.—En.)

Art. 6.—*Lights for Sailing Ships*.—A sailing ship under way, or being towed, shall carry the same lights as are provided by Article 3 for a steamship under way, with the exception of the white masthead light, which she shall never carry.

Art. 7.—*Exceptional Lights for Small Sailing Vessels*.—Whenever, as in the case of small vessels during bad weather, the green and red lights cannot be fixed, these lights shall be kept on deck, on their respective sides of the vessel, ready for use ; and shall, on the approach of or to other vessels, be exhibited on their respective sides in sufficient time to

* New or modified.—En.

prevent collision, in such manner as to make them most visible, and so that the green light shall not be seen on the port side, nor the red light on the starboard side.

To make the use of these portable lights more certain and easy, the lanterns containing them shall each be painted outside with the colour of the light they respectively contain, and shall be provided with proper screens.

Art. 8.—*Lights for Ships at Anchor.*—A ship, whether a steamship or a sailing ship, when at anchor shall carry, where it can best be seen, but at a height not exceeding 20 feet above the hull, a white light, in a globular lantern of not less than 8 inches in diameter, and so constructed as to show a clear uniform and unbroken light visible all round the horizon, and at a distance of at least 1 mile.

Art. 9.—*Lights for Pilot Vessels.*—A sailing pilot vessel, when engaged in supplying or waiting for pilots, shall not carry the lights required for other sailing vessels, but shall carry a white light at the masthead, visible all round the horizon, and shall also exhibit a flare-up light at short intervals, which shall never exceed 15 minutes.

* A sailing pilot vessel when not engaged in supplying or waiting for pilots, shall carry coloured side lights similar to those of other sailing ships under way.

Art. 10.—*Lights for Fishing Vessels and Boats.*—(a). Open fishing boats and other open boats shall not be required to carry the side lights required for other vessels; but every such boat shall, in lieu thereof, have ready at hand a lantern with a green slide on the one side, and a red slide on the other side; and on the approach of or to other vessels, such lantern shall be exhibited in sufficient time to prevent collision, so that the green light shall not be seen on the port side, nor the red light on the starboard side.

(b.) A fishing vessel and open boat, when at anchor, shall exhibit a bright white light.

(c.)* A fishing vessel, when employed in drift net fishing, shall carry on one of her masts two red lights in a vertical line, one over the other, not less than 8 feet apart.

(d.) A trawler at work shall carry on one of her masts two lights in a vertical line, one over the other, not less than 8 feet apart, the upper light red, and the lower green, and shall also either carry the side lights required for other vessels, or, if the side lights cannot be carried, have ready at hand the coloured lights as provided in Article 7, or a lantern with a red and a green slide, as described in paragraph (a) of this Article.

* New or modified.—Ed.

(e.) Fishing vessels and open boats shall not be prevented from using a flare-up in addition, if they desire to do so.

(f.) The lights mentioned in this Article are substituted for those mentioned in the 12th, 13th, and 14th Articles of the Convention scheduled to the Sea Fisheries Act, 1868.*—(This elaborate system of distinguishing different sorts of fishing is new.—Ed.)

Art 11.—*Overtaken Ship may Show Light.**—Nothing in the above Articles shall prevent a ship which is being overtaken by another from waving a light a-stern to such last-mentioned ship, in order to prevent collision.

Rules Concerning Fog, &c., Signals.

Art. 12.—*Sound Signals in Fog, Mist, or Falling Snow.*—A steamship shall be provided with a steam-whistle so placed that the sound may not be intercepted by any obstructions, and with an efficient fog-horn to be sounded by a bellows or other mechanical means, and also with an efficient bell. A sailing ship shall be provided with a similar fog-horn and bell.

In* fog, mist, or falling snow, whether by day or night, the signals described in this Article shall be used as follows: that is to say,

(a.) A steamship under way shall make with her steam-whistle, at intervals of not more than 2* minutes, a prolonged blast.

(b.) A sailing ship under way shall make with her fog-horn, at intervals of not more than 2* minutes, when on the starboard tack 1 blast, when on the port tack 2 blasts, and when with the wind abaft the beam 3 blasts.

(c.) A steamship and a sailing ship when not under way shall, at intervals of not more than 2 minutes, ring the bell.

Art. 13.—*Speed to be Moderate in Fog, &c.*—Every ship, whether a sailing ship or steamship shall, in fog (mist, or falling snow), go at a moderate speed.

Steering and Sailing Rules.

Art. 14.—*Two Sailing Ships.*—When two sailing ships are approaching one another so as to involve risk of collision, one of them shall keep out of the way of the other, as follows, viz.:—

(a.) A ship which is running free shall keep out of the way of a ship which is close-hauled.

(b.) A ship which is close-hauled on the port tack shall keep out of the way of a ship which is close-hauled on the starboard tack.

* New or modified.—Ed.

(c.) When both are running free with the wind on different sides, the ship which has the wind on the port side shall keep out of the way of the other.

(d.) When both are running free with the wind on the same sides, the ship which is to windward shall keep out of the way of the ship which is to leeward.

(e.) A ship which has the wind aft shall keep out of the way of the other ship.

Art. 15.—*Two Ships under Steam Meeting.*—If two ships under steam are meeting end on, or nearly end on, so as to involve risk of collision, each shall put her helm to port (or,* in other words, shall alter her course to starboard), so that each may pass on the port side of the other.

This Article only applies to cases where ships are meeting end on, or nearly end on, in such a manner as to involve risk of collision, and does not apply to two ships which must, if both keep on their respective courses, pass clear of each other.

The only cases to which it does apply are, when each of the two ships is end on, or nearly end on, to the other; in other words, to cases in which, by day, each ship sees the masts of the other in a line, or nearly in a line, with her own; and by night, to cases in which each ship is in such a position as to see both the side lights of the other.

It does not apply by day to cases in which a ship sees another a-head crossing her own course; or by night to cases where the red light of one ship is opposed to the red light of the other; or where the green light of one ship is opposed to the green light of the other; or where a red light without a green light, or a green light without a red light, is seen a-head; or where both green and red lights are seen anywhere but a-head.

Art. 16.—*Two Ships under Steam Crossing.*—If two ships under steam are crossing, so as to involve risk of collision, the ship which has the other on her own starboard side shall keep out of the way of the other.

Art. 17.—*Sailing Ship and Ship under Steam.*—If two ships, one of which is a sailing ship, and the other a steamship, are proceeding in such directions as to involve risk of collision, the steamship shall keep out of the way of the sailing ship.

Art. 18.—*Ships under Steam to Slacken Speed.*—Every steamship, when approaching another ship, so as to involve risk of collision, shall slacken her speed, or, if necessary, stop and reverse.

* New or modified.—Ed.

Art. 19.—Optional Sound Signals to indicate a Steamer's Course.—A steamship under way may indicate to another ship the direction she proposes to take by the following signals on her steam whistle, viz. :—

One short blast to mean, "I am about to port my helm ;" in other words, "I am about to alter my course to starboard :"

Two short blasts to mean, "I am about to starboard my helm ;" in other words, "I am about to alter my course to port :"

Three short blasts to mean, "I am going full speed a-stern."

The use of these signals is optional ; but if they are used, the course of the ship must be in accordance with the signal made.

They are not to be used in fog, mist, or falling snow, when the other ship is not visible.

This article does not authorise any departure from the Steering and Sailing Rules contained in these regulations.

Art. 20.—Vessels Overtaking other Vessels.—Every vessel overtaking any other vessel shall keep out of the way of the last-mentioned vessel.

Art. 21.—Steamers in Narrow Channels.*—In narrow channels every steamship shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which lies on the starboard side of such ship.

Art. 22.—Construction of Articles 12, 13, 14, 15, 18.—Where by the above rules one of two ships is to keep out of the way, the other shall keep her course.

Art. 23.—Proviso to save Special Cases.—In obeying and construing these rules, due regard shall be had to all dangers of navigation ; and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger.

Art. 24.—No Ship, under any Circumstances, to neglect Proper Precautions.—Nothing in these rules shall exonerate any ship, or the owner, or master, or crew thereof, from the consequences of any neglect to carry lights or signals, or of any neglect to keep a proper look-out, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

Art. 25.—Reservation of Rules for Harbours.*—Nothing in these rules shall interfere with the operation of a special rule, duly made by lawful authority, relative to the navigation of any harbour, river, or inland navigation.

On the above Report we have to congratulate the Committee in seeing their way to reintroduce into the rules (Art. 21) the good old rule for which we have so often pleaded, which requires steamers when navigating

* This is new.—ED.

in narrow waters to keep to the right, just as foot passengers do in crowded thoroughfares in our towns and cities. And, on the other hand, we can only regret that the Committee did not go further than they have done in dealing with the terms "starboard" and "port." We much doubt whether the mixing together of the terms port and starboard as they are mixed up in Article 15 will not lead to even more confusion than exists at the present time. It is much to be regretted that the very unnecessary mention of the "helm" should have been retained in Article 15. If a direction had been given, "each ship shall alter her course to starboard so that each may pass on the port side of the other," it would surely have been sufficient without also maintaining the reference to porting helm. Now that steering-gear is arranged in such a puzzling variety of ways, and that all sorts of mechanical gear and engines are used, the words "port helm" possess positively no definite meaning. An injunction or notice on the side of a pathway, "pass to the right," is found to be sufficient for pedestrians, and is more simple on the whole than "on meeting any other person turn your heels to the left, so that you may alter your course to the right, and so that each person may pass on the left side of the other." The same criticism applies to Article 19. Why not leave out there also the puzzling reference to "port" and "starboard helm," coupled with the direct reverse wording of "starboard and port course?" If one blast of a whistle is to mean, "I am about to alter my course to starboard," or, in other words, "I am about to go to the right," why is it also necessary to complicate it with adding, "I am going to put my helm to port so that I may alter my course to starboard?" And in the case of a disconnected paddle or a twin-screw, the direction of the tiller is of less importance still.

It would be the best for mere simplicity of words if Article 15 were, "If two steamships, &c., are meeting, end on, &c., 'each shall alter her course to the right so as to pass on the left of the other;'" and Article 19, a short blast shall mean, "I am about to go to the right," &c.; but the words "left" and "right" are not such distinctive and distinguishable words as "port" and "starboard." Therefore, while it is wise to keep to the terms port and starboard as meaning left and right let it be understood that whenever these words are used to enjoin or direct an alteration in the course of a ship, they really express what they mean and really mean what they express, viz., an alteration in direction of the ship's head towards the left or right, as the case may be—(that would be a well known and unmistakeable reality)—instead of applying the words to the direction of the "tiller" (or the "lever" that now takes its place), which may be moved up or down, or down or up, or left or right, or right or left, according to the special arrangement in each ship to comply with the order "port" or "starboard" helm.

Articles 15 and 19 contain steps in the right direction, insomuch that they refer to the direction in which the "course" as well as the "helm" is to be altered, but with a little less timidity on the part of the Committee the injunction to alter the "course" might have added safety to navigation by superseding the injunction to alter the helm.

COMMITTEE ON FREEBOARD OF MERCHANT SHIPS.



HE Board of Trade (Parl. Paper, No. 8, 1876), apparently anxious to thrash out the question of freeboard, addressed the following letter to the Secretaries of the two Registry Societies :—

Board of Trade, Whitehall Gardens,
12th November, 1875.

SIR,—I am directed by the Board of Trade to request the assistance of the Committee of* in the following matter. The Committee are aware that Parliament has given to the Board of Trade and its officers power to detain ships which are so overladen as to be dangerous to human life. There is no part of the duties of the Board of Trade which has given them more anxiety or which involves greater difficulty. The question whether a ship is too deeply loaded or not, as your Committee are aware, is often one of the greatest nicety, and the difficulty of the question to the Board of Trade is increased by the fact that their officers have frequently to determine whether to interfere or not at the last moment, when the ship is loaded and on the point of proceeding to sea, and when there is often no possibility for them to make themselves acquainted with particulars of form, construction, stowage, and other elements necessary in order to come to a proper conclusion. Under these circumstances there is obvious danger on the one hand that ships may be arbitrarily and capriciously stopped to the great annoyance and loss of the ship-owner and to the injury of British Trade, and on the other that ships may, under the eyes of the Board officers, be allowed to put to sea in an unseaworthy condition. Nor does the difficulty stop here. In cases where the Board of Trade or their officers have come to the conclusion that they must interfere, and must require a ship to be lightened, they have to determine to what extent she should be lightened. If they do not require her to be lightened sufficiently for safety, they take upon themselves the responsibility of sending the ship to sea in an unseaworthy

* 1. Lloyd's Registry. 2. The Liverpool Underwriters' Registry.

condition, and thus protect the shipowner against the liabilities to which he would otherwise be subject, and which ought to rest upon him. If they require more freeboard than is sufficient they may turn a profitable into an unprofitable voyage, to the serious injury not only of the shipowner, but of those whom he employs, and of the trade carried on under the British flag. Under these circumstances the Board of Trade would be too glad, if it were possible for them, to issue to their officers any certain rules fixing the exact limits of draught of water and freeboard within which a ship should be deemed safe and seaworthy. But this, as your Committee are well aware, is quite impracticable. Differences in season, in voyage, in cargo, in the stowage of cargo, in the material, and above all in the size, form, and construction of the ship, are all elements which have to be taken into consideration in fixing the proper depth of loading, and which, varying infinitely as they all do in themselves, require corresponding differences in the load-line. The extremely complex character of the question thus raised is obvious. It is found as a matter of fact that in some cases even the most experienced persons will differ in opinion. It is further obvious that it is the tendency of all rules to handicap the best type of ship, and that if any rules are adopted which do this to any extent, they may have a fatal effect on the British Mercantile Marine, by inducing shipowners and shipbuilders to build and load down to those rules, instead of building and loading according to the best and safest plan. Under such circumstances the Board of Trade apprehend that anything like a hard and fast line, any fixed rules for determining freeboard, are out of the question. On the other hand, the arbitrary decision even of the most experienced officers is open to great objection. Under these circumstances they are anxious to ascertain whether it is possible to lay down certain elementary principles which may serve as a point of departure to their officers, and by the judicious application of which they may, whilst maintaining a certain uniformity of practice, adapt their action to the requirements of particular cases, and avoid the evils to which all fixed rules are obnoxious. It is for these purposes that the Board of Trade seek the advice of your Committee. It is of great importance in so very difficult and technical a matter that no steps should be taken without obtaining all the assistance which experience can give, and also that the different bodies who are able to exercise authority or influence in the matter shall endeavour to act in unison. The Board have therefore desired me to invite your Committee to join with them in endeavouring to ascertain whether it is practicable to lay down any elementary principles concerning freeboard and draught of water, and they have invited the* to give them similar assistance. On

* Liverpool Registry.

hearing from you that your Committee are willing to give this assistance, the Board of Trade are ready to communicate either personally, or by appointing officers to meet officers of your Committee and of the,* or in any other way that may be found most expedient.—I am, &c. (Signed) T. H. FARRER.—The Secretary to the Committee of Lloyd's Register.—The Secretary to the Committee of Liverpool Underwriters' Registry.

A Committee was nominated, and they met, the result being the following letter and Reports:—

Committee on Overloading to Board of Trade.

St. Katherine Dock House, Tower Hill, E.,
10th December, 1875.

SIR,—I have to report that the nominees of the Committee of Lloyd's Register of British and Foreign Shipping have withdrawn from the Committee appointed by the Board of Trade to "ascertain whether it is possible to lay down certain elementary principles, which may serve as a point of departure to their officers, and by the judicious application of which they may, whilst maintaining a certain uniformity of practice, adapt their action to the requirements of particular cases and avoid the evils to which all fixed rules are obnoxious."

The circumstances of this withdrawal are shown in the minutes of the proceedings of the Overloading Committee, of which a copy is appended. (*See Enclosure 1.*) I ought to mention that when Mr. Tindall, our then chairman, read to us the minute of the Committee of Lloyd's Register, instructing their nominees to withdraw from us, I endeavoured to show that the resolution (Number 5) complained of by Lloyd's Register was strictly within the reference to us as a Committee, that it was colourless (as indeed the chairman himself had stated when putting it), and that it did not pledge us (the Overloading Committee) to adopt any principle whatever, but merely pledged us to consider in due course a certain proposition. I, moreover, urged, as strongly as I was able, that the meeting should be adjourned until the next day, so that the nominees of Lloyd's Register, having, as I thought, attached a wrong meaning to the resolution, might have time to reconsider their intention of withdrawing; Mr. Rundell, a Liverpool nominee, also urged adjournment for the same purpose, but the chairman positively declined.

The chairman at the same time promised the Committee that a copy of the paper he had read should be sent to me. (*See enclosure 2.*) It has not yet been received, but a letter appended hereto has been received from the secretary of the Register, which serves the same purpose.

* Lloyd's Register.

After the nominees of Lloyd's Register had formally withdrawn, it was proposed, seconded, and unanimously carried, that I should be chairman of the Overloading Committee, that I should report the present position and that the Committee stand adjourned until Thursday next.—I am, &c.
(Signed) THOMAS GRAY, Chairman (*pro tem.*) of Overloading Committee.

To the Secretary, Board of Trade.

Enclosure 1.

COMMITTEE ON OVERLOADING.—PROCEEDINGS.

Board of Trade nominees :—Messrs. Wimshurst, T. Gray, and Captain Digby Murray ; Lloyd's Registry nominees : Messrs. Martell, Tindall and Duncan ; Liverpool Registry nominees : Messrs. Rundell, Nelson and Royden.

7th December, 1875.

Present :—Mr. W. H. Tindall in the chair ; Messrs. G. Duncan and T. Gray, Captain Digby Murray, Messrs. Martell, Nelson, Rundell, and Wimshurst.

No. 1.

It was proposed, and seconded : “ That an important consideration in laying down elementary principles for the government of the officers of the Board of Trade in dealing with the load-line question, is the construction and relative strength of the vessel.”—(Signed) W. H. TINDALL.

Carried.

No. 2.

It was proposed, and seconded :—“ That the following is also an important consideration in laying down elementary principles. The proportion borne by inclosed space above the water-line to the proportion below it.”—(Signed) W. H. TINDALL.

Carried.

No. 8.

It was proposed, and seconded :—“ That the form and proportion of vessel as indicating her qualities as a sea-boat, her sheer, and the strength and scantling of her deck fittings are also important elements.”—(Signed) W. H. TINDALL.

Carried.

8th December, 1875.

Present :—Mr. W. H. Tindall in the chair ; Messrs. G. Duncan and T. Gray, Captain Digby Murray, Messrs. Martell, Nelson, Royden, Rundell, and Wimshurst.

No. 4.

It was proposed, and seconded :—" That in considering elementary principles, which may serve as points of departure for Board of Trade officers, it is assumed that the first points of departure are that the ship is a strong, well-built, flush main-decked ship of average proportions properly stowed, fit to carry dry and perishable cargoes to and from all parts of the world under all circumstances of wind and weather.

" Taking, first, wooden sailing ships, then iron sailing ships, then iron steamships."—(Signed) W. H. TINDALL.

Carried, with one dissentient.

No. 5.

It was proposed, and seconded :—" That amongst other means for comparing the proportions mentioned in the foregoing resolution (No. 2), this Committee will have to consider in due course whether any and what percentage unit of total displacement—that is to say, whether any and what spare buoyancy is a satisfactory method of ascertaining a point of departure for a vessel's load-line."—(Signed) W. H. TINDALL.

Carried, with one dissentient, Mr. Duncan being absent.

No. 6.

It was proposed, and seconded :—" That freeboard is, as its name implies, height of platform."—(Signed) W. H. TINDALL.

Carried, Mr. Duncan being absent.

No. 7.

It was proposed, and seconded :—" That amongst other means for arriving at a point of departure for a vessel's load-line, this Committee are of opinion that in the larger class of ships and steamers height of platform is of importance, whatever may be the spare buoyancy of the ships."—(Signed) W. H. TINDALL.

Carried, Mr. Duncan being absent.

9th December, 1875.

Present :—The whole of the Committee ; Mr. W. H. Tindall in the chair.

The chairman having read a resolution passed by Lloyd's Committee—

It was proposed, and seconded :—" That the resolution of Lloyd's having been read, should be put in by the chairman."—(Signed) W. H. TINDALL.

Carried, with two dissentients.

The chairman declined to comply with the foregoing resolution passed

by this Committee, but promised that a copy of the paper he had read should be sent to Mr. Gray. The chairman, Mr. Duncan, and Mr. Martell, rose, and eventually formally withdrew from the Committee.

The remaining members of the Committee—viz., Messrs. Nelson, Murray, Wimshurst, Royden, Rundell, and T. Gray—continued the sitting.

It was proposed by Mr. Nelson, and seconded by Mr. Wimshurst :—

“That Mr. Gray take the chair.”

Carried unanimously.

Mr. Gray took the Chair.

It was proposed by Mr. Nelson, and seconded by Mr. Royden :—
“That in consequence of the withdrawal of the nominees of Lloyd's from this Committee, the chairman report to the President of the Board of Trade the present position, and that the Committee stands adjourned until Thursday next, the 16th instant, at 11 o'clock.”—(Signed)
THOMAS GRAY.

Carried unanimously.

Enclosure 2.

Secretary to Lloyd's Register to Board of Trade.

Lloyd's Register of British and Foreign Shipping,
2, White Lion Court, Cornhill, E.C.,
9th December, 1875.

SIR,—Adverting to the conference of representatives of the Board of Trade, the Liverpool Underwriters' Registry of Iron Vessels, and of this society, which met on the 7th and 8th instant, at the invitation of the Board of Trade, with a view to endeavouring to ascertain whether it is practicable to lay down any elementary principles concerning freeboard and draught of water, I am directed to intimate that a report was brought under the notice of the Committee of this society at their meeting this day, in which were embodied the resolutions passed at the conference referred to.

The Committee having considered those resolutions, are of opinion that the conference, which, at the invitation of the Board of Trade, assembled to ascertain whether it was possible to lay down certain elementary principles which might serve as a point of departure to the officers of the Board in dealing with the question of loading vessels, would, in resolving to discuss the question of the proportion of surplus buoyancy suitable for all vessels as set forth in resolution No. 5, be departing from the object of the meeting, and would be entering upon a course that would inevitably tend to fixing a hard and fast load-line, the impracticability of

which was so clearly demonstrated in the letter received from the Board of Trade inviting the conference in question.

Under the circumstances, the Committee have deemed it desirable that their representatives should protest against the consideration of other than elementary principles which they were invited to discuss, and withdraw from the conference.

Mr. Tindall, one of the representatives of the society at the conference, and who officiated at the meetings as chairman, was authorised to convey the decision of the Committee, as above, to you and the other members of the conference, and it is also thought right that I should formally make the same communication.

I have to add that, in accordance with my instructions, I have conveyed the Committee's views on the subject to the Board of Trade.—I am, &c. (Signed), B. WAYMOUTH, Secretary.

T. Gray, Esq., Assistant-Secretary,
Marine Department, Board of Trade.

(Report presented to the Committee of the Underwriters' Registry, 21st December, 1875.)

Underwriters' Registry for Iron Vessels,
Liverpool, 18th December, 1875.

We, the nominees from this Registry, who sat on the "Committee on Overloading" recently appointed by the Board of Trade, have to inform you that this Committee has been dissolved without attaining the object for which it was formed. The immediate cause was the withdrawal from it, by the direction of the Committee of Lloyd's Register, of the three nominees of that society. You will, we believe, concur with us in thinking that this premature dissolution of the Committee is matter for general regret, and that not only yourselves, but the shipping community generally of this country, will naturally expect some explanations as to the cause of this untoward result.

The papers which have been printed and placed in your hands will have informed you of our proceedings, and will show how groundless was the alarm which from the first was manifested by the nominees from Lloyd's Register. For ourselves, we may state that nothing was further from our intention, or as far as we can judge from the intention of the nominees of the Board of Trade, than the idea of fixing a hard and fast load-line. On the contrary, we were careful to define at the outset that elementary principles only were to be considered in the first place, and these as applicable to first-class flush-decked vessels, of medium propor-

tions, and for all seasons and voyages. We throughout considered that there was a wide difference between elementary principles so applied, and the fixing a hard and fast load-line to be used for all vessels in any season, and with any cargo.

Your nominees felt that the important position they had accepted, and its probable results, required that they should give every part of the subject the fullest consideration, and that they should be fully prepared, after full discussion, to bow to the decision of the majority. The nominees of Lloyd's Register, on the contrary, objected to this discussion, and to our proceeding by resolution, and proposed to withdraw when questions of spare buoyancy were touched upon, although, as was pointed out, their own tables for freeboard are expressly founded on this basis.

Mr. Tindall, on taking the chair, made some observations on the object of the Committee, and remarked that the Board of Trade, instead of aiming to get a line to which ships may be loaded, wanted rather to obtain a line beyond which ships should not be loaded. Captain Murray, in following the Chairman, said there was a range between a fair and a deep load-line, between the natural load-line for a ship and one at which she would begin to strain herself and become unseaworthy, and that some general principles were wanted to guide the surveyor to that reasonable safe draught at which a vessel may be permitted to go to sea. After such remarks as these, it was with some surprise that your nominees discovered that a limit was intended to be put to their discussion, and that they were to be precluded from considering a mode of finding a fair load-line for an ordinary flush-decked vessel, even if this step were considered as only preliminary to finding rules for determining the deep-line for a vessel which was supposed to be wanted by the Board of Trade surveyors.

While we lament the premature dissolution of the joint Committee, we fully concur in the opinion expressed in the Board of Trade letter of the 11th instant, that any further sittings of the Committee, weakened by the secession of the nominees of Lloyd's Register, would scarcely answer the purpose for which it was appointed. It remains for those who are interested in shipping to consider whether another representative Committee, constituted somewhat differently, and formed in equal proportions of the persons chiefly interested, might yet be appointed for the same purpose, and with a better chance of attaining the desired end. It cannot be expected that the Board of Trade should again take the initiative in forming such a Committee, but possibly they would not object to do so on the expressed wish of the general shipping community of the United Kingdom. We would, therefore, submit for your consideration whether the papers now placed before you should not to this end be circulated for the information of shipowners generally.

The shipping community of this kingdom have a direct interest in the solution of the questions recently submitted to the joint Committee, and will, we think, fully appreciate the advances already made by the Board of Trade to the two Registries of Shipping for this purpose, although, for the cause already stated, they have had so unfortunate a result.

Had the intentions of the Board of Trade been fairly carried out, we consider that such a general uniformity of practice would have been obtained as would have tended to bring the interference of the officers of the Board of Trade, as respects load draught, within limits which would not be objected to by that large and honourable body which constitutes the great majority of the shipowners of this country.

Your nominees trust that this Report will suffice to show that they did their utmost to carry out the intentions of the Board of Trade in appointing the Committee, and that they fully seconded your expressed wish to give the Board all the aid in your power.

(Signed) PHILIP NELSON, THOS. B. ROYDEN, W. W. RUNDALL,
Nominees of the Underwriters' Registry for Iron Vessels.

NOT RENDERING ASSISTANCE AT SEA.—THE “JOSEPH SOMES” (s.)—The captain of the steamer *Joseph Somes*, of Hull, has been charged at the Hull Police Court with contravening two provisions of the Merchant Shipping Act—viz., for neglecting to stand by a vessel after collision therewith until he had ascertained that there was no need of assistance, or to render to her, the master, or crew, such assistance as might be necessary; also for neglecting to give the name of his vessel, her port of registry, or her destination. The defendant was also prosecuted for neglecting to make an entry of the collision in the official log after the occurrence, as required by the 328th Section of the Merchant Shipping Act, 1854. Several of the crew were called as witnesses, and they deposed to the manner in which the captain had tried to hide the fact of the collision, one of them stating that he had received orders to paint out the marks which had been made on the steamer's bow by contact with the barque. For the defence, it was stated that there was no call for assistance from the barque, the defendant had no knowledge that his steamer had seriously damaged the barque, and there was no pretence that there was any danger to the lives of those on board by reason of the collision. There would, however, have been danger in turning the steamer round. The magistrate found the defendant guilty of both offences, and fined him £10 and costs in each case.

THE SCREW-PROPELLER.

To the Editor of the "Nautical Magazine."



SIR,—I have been looking through the "History of Merchant Shipping and Ancient Commerce," written by W. S. Lindsay, Esq., and you can very well understand that, through my having built the two first successful screw-steamers, my chief interest was centred upon Vol. IV., wherein is an account of the introduction of the screw as a means of propulsion; but, to my astonishment, I find errors, and also omissions as regard my services. To place before your readers a complete history of the successful application of the screw, I beg to be permitted to supplement Mr. Lindsay's valuable work with a few remarks, showing what part I took in the matter.

I will commence by a notice of the chief statements as they are given in the "History," and afterwards, as shortly as I can, I will state my version of the facts, as I know them from personal observation.

Upon page 105 the "History" runs as follows:—"Finding that his invention was likely to succeed when put into practical operation on a larger scale, Ericsson's next step was to order Mr. Gulliver, a boat-builder at Wapping to construct for him a boat of wood, which he named the *Francis B. Ogden*. She was 45 ft. long, and 8 ft. wide, drawing 2 ft. 3 in. water. In this vessel he fitted his engine and two propellers, each of 5 ft. 3 inches diameter. . . . This miniature steamer, tested first by a schooner of 140 tons burthen, towed her at the rate of 7 miles an hour during slack water on the Thames; and afterwards, by the large American packet ship *Toronto*, moving on with her a-stern, &c., &c."

On page 106 is stated, "While Ericsson was making his experiments in the *Francis B. Ogden*, Mr. Thomas Pettit Smith, who, on the 31st of May, 1836, had taken out a patent for a sort of screw or worm made to revolve rapidly under water. . . . His first trial made in a small vessel of 6 tons burthen, with an engine, the cylinder of which was 6 inches diameter and 15 inches stroke." . . .

On page 112: "In following the progress of the screw, as applicable to the propulsion of merchant vessels . . . Capt. Robt. F. Stockton, of the United States Navy, was on a visit to London. . . . Unlike the Lords of the British Admiralty, . . . he was so strongly impressed with the value and utility of the discovery that, though he had made only a single trip in the *Francis B. Ogden* . . . he there and then gave Ericsson a commission to build for him two boats for the United States Navy," . . . and, on page 113, it is stated, "one of these boats, named after her owner, the *Robt. F. Stockton*,

was built by Messrs. Laird, of Birkenhead, and launched in 1838; she was 70 ft. in length, 10 ft. wide, and drew 6 ft. 9 in. of water."

From the foregoing extracts, your readers will very clearly see that the "History" puts the merits of successfully introducing the screw, in the following order:—

To Ericsson is assigned the merit of being the first man to have a boat built by Gulliver, and, with this peculiarity, that she was fitted with two propellers, each 5 ft. 8 in. in diameter, while the said boat drew 2 ft. 3 in. of water; that the same boat towed the American packet-ship, *Toronto*, &c.; and that it was only when these experiments were being made by Ericsson that Thomas Pettit Smith obtained his patent for a sort of screw, and built his boat of 6 tons burthen, with a cylinder of 6 in. diameter, &c.; also, that after witnessing the experiments made by Mr. Ericsson, in the *Francis B. Ogden*, and his towing the *Toronto*, Capt. Robt. F. Stockton, ordered two large vessels from Ericsson, and that the first of these was built by Messrs. Laird, in 1838, and took her owner's name.

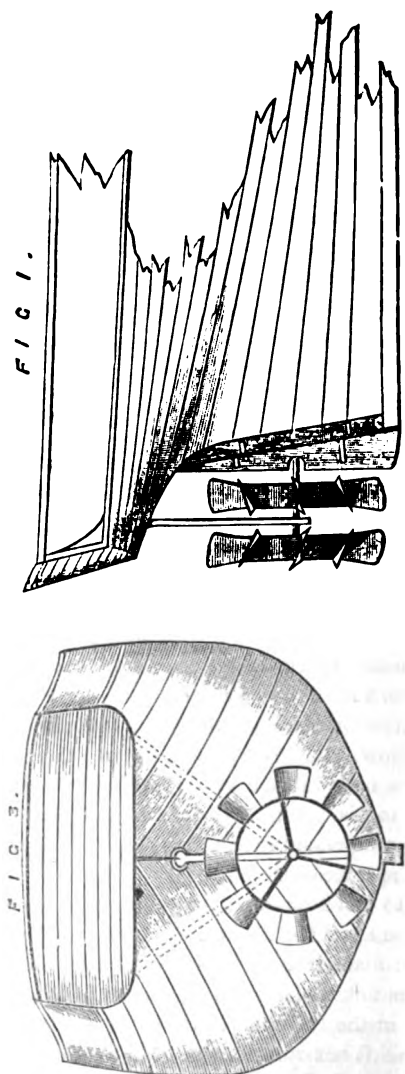
Now, Sir, let me bear witness to the above record, and the stated order of things, being altogether in error. The facts of the case, and I write them from an anxious, laborious, and costly experience, are as follows:—

I know a boat was built by Gulliver—by the order of, and for Francis Pettit Smith—she was about the dimensions named, and drew 2 ft. 3 in. water. She had a screw of true and proper form, 2 ft. in diameter. This screw can yet be seen lying in the South Kensington Museum; she did not attempt to tow anything larger than a barge.

It was while these experiments were being carried out by Smith, in 1836 (Smith's patent for a true-formed screw, bearing date 31st May in that year), that Ericsson obtained his patent, not for a screw, but for propellers made of hollow cylinders with blades upon their circumference; two of these were to be used in each vessel, and they were to work abaft the rudder, according to his patent No. 7,149, and dated 18th July, 1836. Figs. 1 and 8 give a representation of his patented improvements, and are cut from his own specification.

The boat built to test Ericsson's propellers was the *Robt. F. Stockton*: she had them fitted abaft the rudder, as shown in Fig. 4, and they were about 5 ft. 8 in. in diameter. It was this boat which towed the *Toronto*. But this test was not made until the year 1839, and even then not a-stern, as stated in the "History," for owing to the *Robt. F. Stockton's* propellers being abaft her rudder, she steered so badly, that she had to be lashed alongside of the *Toronto*. I was personally witness to this trial, and may therefore speak with confidence. After many other tests, and several alterations, the *Robt. F. Stockton* was taken under sail power to America.

FIGS. 1 AND 8.

Robt. F. Stockton as fitted.

Two 16-inch Cylinders with spiral plates or threads about 5ft. 9in. diameter working abaft vessel's rudder.—See Specification 7,149, July 18th, 1886.

To carry the subject to another stage, I will again refer to the "History," page 107. It states, "The first successful application of this screw-propeller on a large scale was to a vessel called the *Archimedes*, constructed under the direction of the patentee of the screw, Mr. Smith. . . . Her screw-propeller consisted of two half-threads of an 8 ft. pitch, 5 ft. 9 in. diameter, &c." . . . In the footnote, on page 109, is stated, "The first experiment of the *Archimedes* was made on Monday, Oct. 14, 1839."

The "History" omits mention of many important circumstances in connection with the *Archimedes*, especially those leading up to her being designed and built by myself, and wrongly states several of those it attempts to give. Amongst these latter I may point out that her propeller consisted of one blade, or thread, extending the whole turn round the shaft, 8 ft. pitch, and 7 ft. in diameter, and that her first trials were (not in October) in May, when two great events occurred. The first was on the 14th May; the *Archimedes* went round to Portsmouth at the launch of the *Queen*, 120 guns, and on May 26, 1839, when on another of her trials, she exploded her boiler in the East India Docks.

As I believe I was perhaps the most active and practical mover in successfully introducing the screw, I feel sure you will kindly assist me by publishing this letter, and thereby enable me to assert for myself the share or degree of merit attaching to my earlier labours. In June, 1872, you very ably and kindly wrote, supporting my claim and title in this matter.

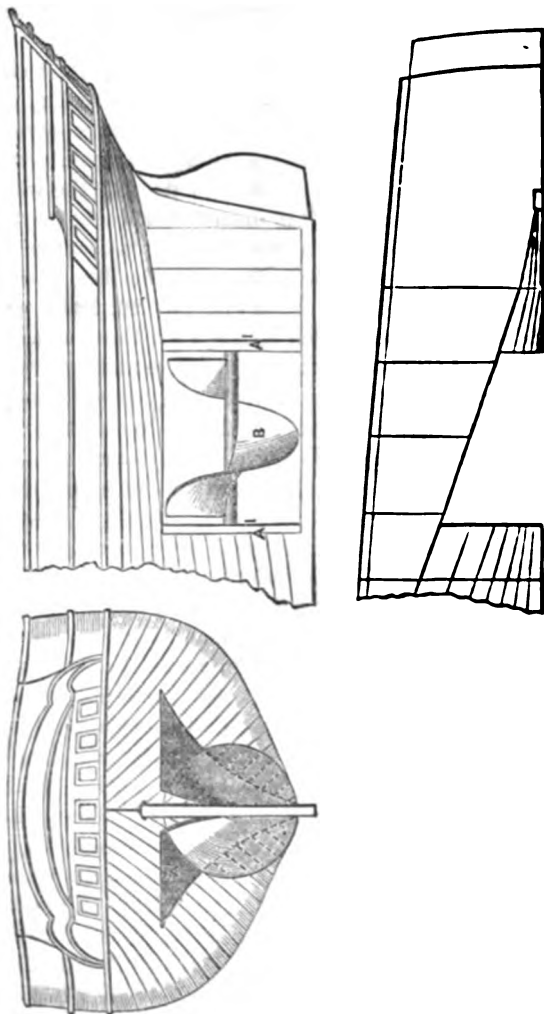
It was in the early part of the year 1838 that I first had to do with Smith's little boat. She had prior to this been under the notice and tests of engineers and others, and was fully and formally condemned by a committee which had been appointed to report upon the invention. Her screw consisted of a whole turn round the shaft, and was situated in a hole cut in the *body* of the boat, about one-fifth her length from aft. Her engine was of the ordinary table type, with a single cylinder 9 in. diameter. It was situated before the propeller, and its power was communicated to the propeller by a third, or vertical shaft, and bevelled wheels. This was the unpromising state of affairs when I was first introduced to them. After making an examination of all the conditions, I clearly saw that when all the absurd surroundings were removed, and the screw properly fitted, shaped, and driven, it must be a success. Consequently I arranged a meeting of my friends, consisting of Lord Weston, Admiral Wollaston, Messrs. Wright, Cauldwell, Wollaston, and others. To these gentlemen I gave my opinion that the screw, if properly applied, would supersede the paddle-wheel. I supported this opinion by offering to subscribe £500 towards building a larger and suitable vessel. Before separating, my friends added a further £5,000,

and in three days afterwards this sum had been increased to £15,000. I then commenced to build the *Archimedes*.

Francis Pettit Smith, afterwards Sir Francis Pettit Smith, and his surveyor, Mr. Thomas Pascoe, were also retained by the company to prepare and approve the necessary drawings, and these drawings are fairly represented in Fig. 1, the screw being placed in a kind of well :—

FIG. 1.

SMITH'S Patent Screw Propeller, May, 1836,* and his Plans proposed for the Experimental Vessel called the *Archimedes*, May, 1838.



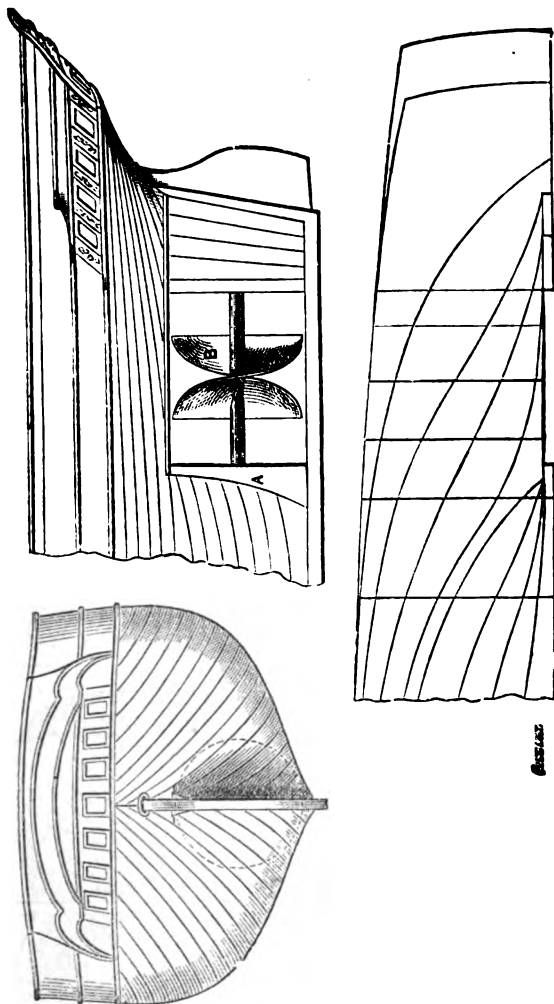
* Before Ericsson's Patent.

The system of bulkheads, before and abaft the propeller, being still retained. I objected to the plans; and it was only after calling a

meeting of the directors of the company that I succeeded in obtaining permission to finish her, as shown in Fig. 2:—

Fig. 2.

WINSHURST'S Patent Improvements, and his Screw, finally adopted by the Ship Propeller Company, 1838-9.



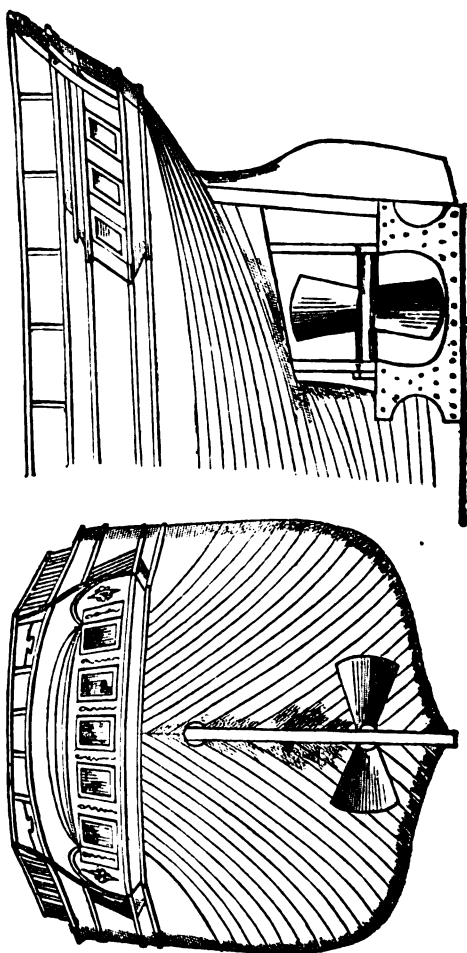
Thus completed, she was launched in October, 1838, her propeller having one whole turn, as shown in Fig. 1. We had several trials in May, 1839, and it was found that the propeller caused very considerable vibration in the stern of the vessel. When starting on one of these trials, on May 26th, the boiler exploded. While the boiler was under repair, and in August, 1839, I obtained the directors' consent to *make a propeller of two blades, each having a half turn only, 10 ft. pitch, and*

5 ft. 9 in. diameter, as shown in Fig. 2, the result of this change being less vibration in the stern of vessel, and an increase of two miles an hour in her speed.

In September, 1839, I commenced to build the second screw-steamer (the *Novelty*), a considerably larger vessel than the *Archimedes*. In her I placed the screw as far aft as possible, reduced the length of the propeller blades to one-fourth turn each, and so adapted the propeller that it could be easily unshipped while the vessel was afloat. See Fig. 3.

Fig. 3.

THE "NOVELTY."



I fitted her with engines acting directly upon the propeller shaft, and with one mast of iron (it being the first iron mast ever made), 58 ft. long by $15\frac{1}{2}$ in. diameter.

When under trial, Mr. Grantham witnessed the satisfactory working of the engines, and he thereupon patented the principle of driving the propeller with direct-acting engines. Some little time after I chartered the vessel to a Liverpool firm for a voyage to Constantinople and back. She carried 420 tons of cargo, exclusive of coals, &c. This voyage is, therefore, and without any doubt, the *first* made by any screw-steamer; nevertheless the "History" omits all mention of the *Novelty*, and of her builder and owner, or her voyage. It would be uselessly trespassing upon your space to add the proof of all these statements, but, if you think it desirable at a future time, I can furnish it to your satisfaction; but, as a general confirmation of the statements, I may inform you and your readers that at the time of my early trials with *my* vessel, the *Novelty*, I advertised in the *Times*, 1842, challenging for speed and economy any other steamer up to double her horse-power, the loser to pay £1,000.

I may also add that the South Kensington Museum Catalogue of Mercantile Marine and Naval Models contains, on page 30, under Class 3, No. 12, a list of models lent by *me* to that institution. The models, of course, still remain in the Museum.

Once more turning to the "History," I notice a few lines on page 110 which contain the bitter truth. They are these, and are in connection with the *Archimedes*:—"Her spirited proprietors, who had been so instrumental in the introduction of the screw, lost all their capital they had invested in this unfortunate undertaking." But, on page 116, I find only the names of Mr. Symington, Captain Ericsson, Mr. F. P. Smith, and Mr. Woodcroft mentioned in connection with the successful introduction of the screw. It seems to me, Sir, that in fairness, credit ought also to have been given to those who devoted themselves to the construction of vessels suited for screw propulsion, such as the *Archimedes* and the *Novelty*, before alluded to, which vessels were designed and built upon *my* improved plans patented in 1840; and it was not until these vessels were constructed that the screw-propeller ever became a success. It is not agreeable to me to lose the small comfort of having my name and early works associated with the development of so important a mechanical arrangement as the screw-propeller for marine purposes, and therefore I venture to trouble you with this somewhat lengthy statement, feeling assured that you will do me the justice to insert it at an early date.

I am, Sir, respectfully yours,

HENRY WIMSHURST.

3rd March, 1876.

[In publishing the above letter from Mr. Wimshurst, we would observe that on the one hand Mr. Lindsay has laboriously, honestly, and studiously given the world the most complete history of merchant shipping and com-

merce ever penned ; and, on the other hand, an active participator in the practical application of the screw still lives, and has vigour left to challenge the historian. We know both gentlemen to be actuated by the best of motives, and we feel sure that if the one should by an accident have omitted to mention the other in his "History," he will gladly do what he can to rectify the omission. As regards the credit due to Mr. Wimshurst, we have no doubt that he will be able to assert his right to a participation in so important an adjunct to commerce, in a way that will determine the matter ; and if he prove successful, we think Mr. Lindsay will regard it as an unfortunate circumstance that Mr. Wimshurst's name should have been wholly unmentioned in his great work.—ED.]

MERCHANT SHIPPING LEGISLATION AND ITS INFLUENCES.

THE present unsatisfactory condition of the shipping trade is a matter that deserves the most serious consideration, not only on the part of the House of Commons, who are still engaged in laying down fresh restrictive measures for the British Mercantile Marine, but also from every Englishman who has the general welfare of his country at heart. Of course trade is dull just now ; but we believe the slight retrogression that has taken place in certain branches of industry is totally insufficient to account for the extreme depression that has arisen in the merchant shipping trade. It is obvious that the mere uncertainty which now exists with regard to what the morrow may bring forth for the shipowner must have a most injurious influence upon his business ; but a still more fatal influence than this uncertainty is the tendency of all restrictive legislation to force trade into new channels. The shipowner naturally feels reluctant to engage in anything like spirited enterprise in his business in the face of the harassments and interferences with which he is threatened. At the present time, indeed, he is bound to be cautious, for it is impossible to tell what an hour may evolve from the fertile brains of merchant shipping reformers. We have no wish to become alarmists, but we think the country would do well to pay close attention to the effect which, it seems to us, legislative interference and uncertainty are now undoubtedly taking upon our Mercantile Marine. We have nothing whatever to say against legitimate regulations ; but we cannot protest too strongly against the dillying and dallying with merchant shipping which we have had to

witness during the last two or three years, and we sincerely trust that the present session of Parliament will see the merchant shipping question settled, to be disturbed no more for many, many years. This is a "consummation devoutly to be wished," if only to escape from the constant uncertainty that hangs over the shipping trade ; but experience will have to decide whether Parliament has or has not overstepped the bounds of moderation in laying down restrictive enactments for the shipowner.

Judging from the present condition of affairs, it certainly appears that legislation possesses anything but a beneficial influence. That all restrictions on British shipping must have a direct tendency to encourage unfair competition, and to foster the foreign trade at the expense of our own, is a proposition which no sane man can dispute. Yet in spite of this fact, Parliament does not hesitate to set boldly to work, apparently relying upon the great vigour that has always characterized our maritime commerce, to counteract the evil influence of the rules and regulations it imposes. It is to be hoped that the British shipowner will be able to give the foreigner the advantage of this extra weight, and still come to the front ; but looking to the keen competition that is now arising from abroad, and to the great development of the shipping of some of the continental nations, we can scarcely hope that our countrymen will be able to maintain the decidedly superior position they have invariably occupied in the past. Mr. Plimsoll and his supporters are looked upon as the benefactors of their country, as men who place a higher value on human life than upon mere commercial considerations. At first sight, and to those who base all their judgments on names, the position of the new apostles of humanity must appear unassailable. We have no intention of making any high sounding declaration with regard to the purity and disinterestedness of our own motives ; we must leave our readers to judge whether we have ever shown that we look upon sailors' lives as a matter of trifling consequence ; but at the same time we appeal to all men who are capable of considering the question without bias, to ask themselves whether they are prepared to proceed to any length on the mere chance of saving British seamen from shipwreck. When brought down from the region of sentiment this question is a simple one, and one which it requires no great depth of philosophy to enable the honest inquirer to decide. We have only to bear in mind that there is a certain quantity of carrying trade to be done in the world. For that trade various nations are competing, but as yet Englishmen by their spirit of enterprise and love for the sea, have managed to take and hold the lead. It is now proposed to saddle Englishmen with restrictions such as scarcely any of their opponents have to bear. It is quite evident what must be the inevitable tendency of such a system. Whether these restrictions be imposed or not, the carrying will still have to be per-

formed ; the only difference will be, if they are imposed, that foreigners, instead of Englishmen, will be the carriers, and that foreign seamen will have to incur the risks which English seamen now run. Pushed to its logical conclusion, the proposals of the humanitarian reformers amount to nothing more than to exchange our marine commerce for increased safety, and to exactly the opposite results for foreigners, who will win our trade, and take the risks which Englishmen will not be allowed to incur. Whatever may be the actual worth of the merchant shipping legislation of the last few years, it cannot be described as anything less than harassing, with its constant changes and ever-threatening reforms. And, apart from the injury produced by the creation of unfair conditions of competition, all this cannot fail to act to the detriment of the shipping trade generally. It is vain to expect the shipowner to enter on any new undertakings when they are uncertain whether they will be allowed to retain the management of the business they now possess. And this check upon maritime enterprise is a matter which affects the entire population of the country. As we have long since pointed out, England is a nation whose daily existence depends on her communications with the outside world, and every interference with the shipowner is an interference with these. It will not do for any section of the community to argue and act as though this were a question bearing only on the shipowner's interests ; and all would therefore do well to think before they give their support to proposals that are bound to possess great practical importance for themselves.

The British sailor is told to look upon the leaders of the sensational reform that has been commenced as his only true friends. It is to be hoped that the day may never arrive when experience will teach him differently. If legislative interference should become too onerous, the seaman will see the employment which has hitherto been plentifully at hand, gradually decreasing ; and at last he will find himself compelled either to accept much lower wages than are now paid, or driven entirely from his occupation. There are few who dare to come forward to save him from his friends ; the latter have assumed an apparently impregnable moral position, but the time may come when he will wish that his preservers had been less enthusiastic. To prevent him from earning his living, in order to save his life, may possibly be humane policy, but when he finds himself left penniless, and without work, he will probably come to the conclusion that it would have been far preferable to have risked the chance of finding himself on board one of the few unseaworthy ships that sail from British ports, to finding a pauper's grave, or to compete for wages which he would now scorn to accept.

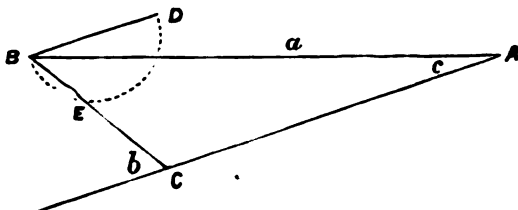
In our opinion, the sensation that was raised towards the close of the parliamentary session of 1875, is, in every way, to be deplored.

The country was taken by surprise, and the first outburst of popular feeling sufficed to force the hands of the Government. They were compelled to act hastily, and without sufficient consideration, but having acted, they have again been forced to accept the principle of the temporary measure of last year as the basis of a system that required the most careful consideration prior to its adoption. The people of England are now in a position to look calmly upon the question, which is one that ought never to have been treated in the hasty manner in which it was disposed of by the Act of 1875. Unfortunately, they allowed themselves to be deceived by a ridiculous scene on the floor of the House of Commons, and by a few exaggerations, and the consequence is that an entirely new policy, affecting the most important industry of the country, seems likely to become an established fact. There is yet time to prevent any serious injury being inflicted, and we trust that Parliament will not fail to recognise in the present condition of the shipping trade one of the possible results of recent legislation. The Parliamentary Returns of 1875, relative to the Progress of British Merchant Shipping, seemed to show conclusively that an unusual number of smaller vessels were disappearing from the British Register; and here it is that the work of destruction may be expected to begin. In certain quarters it has become the fashion to speak contemptuously of the struggling shipowner—the poor “costermonger of the sea.” But should it ever come to pass that this class of owner be stamped out, England will certainly have cause to rue the day that commenced the policy which ended in his destruction. He it is who keeps alive the spirit of enterprise and competition, and although our great shipping companies and large owners may sail vessels greatly superior to his in build and outfit, England, if she finds herself completely in the hands of a few great monopolists of this description, will then be able to appreciate the value of the man who has hitherto worked for her so cheaply, and—in spite of all the accusations and calumnies to which he has lately been subject—we may add, so well.

GERMAN SOCIETY FOR SAVING LIFE.—The annual report of the German Society for Saving Life shows that last year 98 vessels were in distress on the German coasts, 60 in the North Sea, and 38 in the Baltic. On board of them were 569 persons, of whom 516 were saved; 201 by their own exertions, 119 by assistance sent out to sea, 92 by help from the land. The stations established by the society lent aid in 104 of those shipwrecks—that is to say, the lifeboats to 88, and the rocket apparatus to 16.

NAUTICAL PROBLEM.

A STEAMSHIP, bound from A to B, has the wind so that sails cannot be used unless her course is altered to A C. It is required to find where she must haul up for her port so that the time along A C + C B may be the least possible, having given A B = a miles, $\angle B A C = c^\circ$, the hourly rate of sailing along A C = p miles, and along A B and C B = q miles.



Construction.—Through B draw B D parallel to A C and equal to p . On B D, as diameter, describe a semi-circle lying towards A C, and in it place B E = q ; then B E produced will cut A C in the point required.

Demonstration.—Let B C make an angle b with A C produced. Then,

$$B C \sin b = a \sin c, \text{ and}$$

$$A C \sin b = a \sin (b - c), \text{ hence the time along}$$

A C and C B is

$$\frac{a \sin (b - c)}{p \sin b} + \frac{a \sin c}{q \sin b}$$

$\therefore q \cos c + p \sin c \operatorname{cosec} b - q \sin c \cot b$ is to be a minimum, or

$$\frac{p - q \cos b}{\sin b} = x \text{ say, a minimum}$$

$$\therefore \frac{x}{p} \sin b + \frac{q}{p} \cos b = 1$$

$$\text{but } \sin b \cdot \sin b + \cos b \cdot \cos b = 1$$

$$\therefore \cos b = \frac{q}{p} \quad \text{Q. E. D.}$$

Example :

If $p = 8$ knots, $q = 5$ knots,

$a = 600$ knots and $c = 2$ points,

We have, Time along A B = 120 hours,

Time along A C + C B = 105 hours,

$$\therefore \text{Time saved} = 15 \text{ hours.}$$

THOMAS DOBSON, M.A., of St. John's Coll., Camb.,
Head Master of the Marine School of South Shields.

LIFEBOAT BRIDGE AND LIFEBOAT ON H.M.S. "ORONTES."

MR. EDITOR,—Feeling that the important subject of saving life at sea has been so carefully watched and ably advocated in your valuable journal, I have thought to send you particulars of the trial and description of the above bridge and boat. The Admiralty have been the first to adopt the lifeboat bridge known as Hire and White's, which was patented in 1865, which has lately been fitted on board H.M.S. *Orontes*, and launched that ship in Portsmouth on the 19th February last. The trial was carried out by Captain Seymour and his officers in the presence of Admiral Sir Leopold McClintock, superintendent of the dockyard; also the chief constructor and his staff, and several naval officers from the ships in harbour; Captain Brownlow, R.N., attending from the Transport Department, Whitehall. Captain Seymour, and all who witnessed the launching and trial, expressed themselves perfectly satisfied.

The boat was first launched bow foremost over the gunwale, being 16 feet from the water; it took less than five minutes to remove the lashings and stanchions, and cant the bridge down to the gunwale, after which, on the dog shores being removed, the boat rushed down the declivity, attaining a momentum which carried her 150 yards to windward of the ship though blowing at the time half a gale of wind direct on the broadside of the ship, the boat taking in very little water, from which freed herself in about one minute through the tubes in the bottom. She was then hoisted up by a tackle from the mainyard, and replaced on the bridge and launched stern foremost with equal success.

The boat is constructed as a passenger ship lifeboat, has air chambers along the sides and in the bow up to the gunwale, similar to the lifeboats known as Lamb and White's. The air compartments give a buoyant power of 10 tons capable of supporting 100 men, should she be filled by a sea or stove in the bottom. She will carry 210 men, including 16 rowers, representing 16 tons. She would with these weights on board draw 2 feet of water, and, by closing the rowlock shutters, she would have a freeboard of 2 feet 5 inches. The total displacement or dead-weight the boat would carry is 23 tons, with 17 inches freeboard to the top of the wash strake.

The boat fitted to the *Orontes* has a square stern, as suggested by Sir William Mends, Director of Transports, so as to be utilized as a horse-boat, and will carry 8 horses and 20 men, with a field-gun mounted on its carriage ready for immediate use.

The flap in the stern, when lowered, forms a brow. The boat has considerable camber abaft, the keel turned up to enable her to take a

sloping beach. She is the first lifeboat designed to be stowed athwartships, and to carry horses, and can be made available for the various purposes of the ship's requirements, such as landing troops, ordnance, and ammunition, or for carrying out anchors, which can be lashed under the bottom, the ropes leading up through the delivery tubes. She can be fitted with a swivel gun, (Gatling, or other) on the bow, which, coupled with field-piece on the stern ready mounted, would for strategical purposes form an important and valuable arm in the service, particularly in rivers where light draughts of water and good navigable qualities are required. Small arms, ammunition, and men's kit, provisions, &c., can be stowed in the lockers or air-compartments, on such occasions there being sufficient buoyancy to spare.

As it is now an acknowledged fact that small boats are comparatively useless, and after the serious attention the Board of Trade have given to the subject of ships' boats, I think it may not be presumption on my part to suggest that, should the Board consider it an imperative necessity that where large numbers of passengers are carried, and large means are necessary for saving their lives, they should render compulsory this or some similar plan.

As far as the present plan is concerned, I consider it the best to meet the emergency—namely, by adopting large lifeboats and bridges athwartships, by which these boats can be launched almost instantaneously, thus giving, in my opinion, the real solution of the important problem of saving life at sea.

I am, Sir, yours obediently,

JOHN WHITE.

Cowes, I.W., 14 April, 1876.

MARINE INVENTIONS.

Provisional protection has been granted for a particular method of constructing and applying water sails for the purpose of covering large rents, or holes, in the sides of vessels at sea, caused by collision, cannon-shot, or otherwise.

The invention consists of, *firstly*, a strong sail which may be of any size or shape required, but the inventor prefers that it should be made of two or more parts of strongest American cotton sail-cloth, or No. 1 flax canvas, one side of which may be thrummed with Manilla yarn, worsted, or woollen yarn, or otherwise, and the whole sail strongly roped round and across where required, and fitted with necessary cringles.

eyelet-holes, &c., &c., for attaching rope and other gear. The sail may also be used, with or without a yard, as hereafter described.

Secondly.—A large, hollow roller, or tube, made of copper or zinc metal of about one foot in diameter and of a length according to the size of the sail. This roller to be provided with water-tight plugs at each end with lanyards attached, so that the roller may float when the ends are tight and sink when the plugs are withdrawn, as may be required. The roller to be attached to the foot of the *water sail*, which, with the thrum side out, will be tightly rolled round the *tube roller* up to the head of the sail, or yard, to which it will be attached by parbuckle lines so rove and arranged as to control the lowering or unrolling of the sail, the foot-lines of which shall also be coiled round the outer end of the tube roller in such manner as to govern or assist the unrolling of the sail if required. The sail thus prepared is ready for use, and can be lowered into the water and floated to any part of the vessel's side, exactly above the part where the hole is known to exist under water. The yard or head of the sail is then made fast in the ordinary way with the head ropes, bow ropes, and stern ropes. Then pull out the plugs from the tube end, slack away the parbuckle, the tube roller will fill with water and sink the sail, gradually unrolling and covering the side through which the rent has been made. At the same time the foot-lines, which shall previously have been passed under the bottom of the vessel, must be hauled up and made fast, thus keeping the sail in its place, and it shall be further secured by ropes from forward and aft made fast to the sides of the sail by nettles of smaller rope.

The inventor also claims a method of strengthening the back of the sail with 2½ or 3 inch copper tubes extending partly across the sail, and placed parallel to each other at intervals of one foot or otherwise, according to the strength required to resist certain pressures. The sail so strengthened being for use when the hole or rent in the side is of large area, and when the sail without such strengthening would be drawn into the hole or rent and rendered useless. This sail would be rolled up and used in the same manner as before described, except that the large roller would not be used with it.—GEORGE ALEXANDER LAWS, Tynemouth, Northumberland.

AUTOMATIC SHIP'S BOAT RELEASING APPARATUS.—Two hooks, secured through the keel at either end, and two rings (instead of hooks) to the lower block of the tackle falls, is all the gear used, these being perfectly free from delicate joints or complicated mechanical contrivances, and they are attached in the usual manner. The hooks being in the boat (instead of on the falls), the possibility of their catching under the gun-wales, thwarts, bow or stern sheets, before the boat is away from the

ship's side (as frequently occurs as she rises and falls alongside in a sea-way) is entirely avoided. On being waterborne (at any period of her descent) the disengagement takes place automatically, instantaneously, and simultaneously at both ends; yet so silently, that the first knowledge the crew possess of its having occurred is that they find the boat under their immediate control, with nothing to do but pull away in the direction ordered, there being nothing else to do—no ropes, chains, connecting lines or gear of any kind to unreeve, unwind, or clear away.

It cannot be released at an inopportune moment, whether caused by injudicious or mistaken orders, or by error of judgment; and experiment has shown that it may be safely used with a vessel proceeding at any rate of speed. There is nothing in the boat to prevent its free use by crew, passengers, baggage, or stores. Should a surging sea sweep the boat upwards, as high as the rail, while being lowered—retiring—it bears it away softly on its bosom, instead of leaving it in mid-air to be dashed against the ship's side with the weather roll, attended as it is so often with the fatal results so well known to sailors.

The boat is hooked on again in the usual manner, hooks and rings only being reversed (as before described), and a simple contrivance locks the connection with "one action," which serves also instead of the usual precaution of "mousing the hooks," when the boat is once more secured at the davit heads for sea service.

For further information, apply to the PATENTEE, Captain Leeman, R.N.R., 28, Regent Quay, Aberdeen.

CORRESPONDENCE.

THE HEALTH OF SEAMEN.

To the Editor of the "Nautical Magazine."

SIR,—In last October's edition of your Magazine, a letter appeared in which I drew attention to the necessity of having some record of the health of seamen, and suggested a means of obtaining such record. The discussion of this subject has, in part, passed into abler hands; but as the intended examination of seamen before being articulated (inasmuch as it could not be depended upon for the detection of chronic cases) would not effectually remedy the deficiency to which I have alluded, I would ask you to permit me to recur to the subject of my last letter and offer some explanation in answer to the remarks which were appended to it. I would ask you to observe that your objections to what were there termed "health cards" would be equally powerful against "discharge certi-

ificates," which, nevertheless, are depended on as guarantees of the worthiness of those engaged. If, therefore, the "discharge certificate" is of any value, I would venture to propose such an addition to its contents as could not fail materially to increase that value, viz., that it should contain space in which the captain should be able briefly to state the health of the seaman during his last voyage, and that it should thus become a certificate as much of *health* as it is at present of character and ability.

Having pointed to one of the grievances of captains and owners, may I request you to allow me, on the other hand, to draw attention to a subject in which the interests of sailors are concerned? In the event of an accident occurring on board of the majority of ships, the life of the injured seaman may depend on the skill and knowledge of the captain: should not the latter, therefore, possess the knowledge which would be the most essential for dealing with urgent cases of injury or illness at sea? During some portion or another of his career, and chiefly whilst reading for his certificates, a sailor spends several months on shore. I hope it will not appear outrageous to suggest that if hospitals in the different towns of England would permit one who has qualified himself in navigation to be a captain to attend the out-patient wards and operating theatres, a certificate of having obtained some knowledge of minor surgery in that manner during three or six months should be presented by each one before receiving his certificate as master, or, failing that, some proof of his having received such instruction during a similar period from an ordinary medical practitioner or from one appointed by Government.

I beg to remain, Sir, your obedient servant,

J. NUMA-RAT, Surgeon R. M. S. P. Company.

R. M. S. Club, Southampton, March 31, 1876.

CONTINUATION OF CRITICISM ON THE DOUBLE ALTITUDE PROBLEM,
AND REMARKS ON THE EQUAL ALTITUDES PROBLEM.

To the Editor of the "Nautical Magazine."

SIR,—Having been requested by several of your readers to complete my criticism, I beg you will insert the following in the next number of your valuable Magazine:—

The sixth paragraph of my former paper is incorrectly expressed; it should be:—Mr. R. might have simplified this process if he had noticed that as $H^1 = h + H$; or that $H^1 = \frac{1}{2} h^1 - H$; and that H is constant: consequently the error of $H^1 =$ error either of h or h^1 . Hence it would

only have been necessary for him to find $-e_1 - e_2$, or $+e_3 - e_4$. In my notation, the signs will be opposite: so that I shall show that $e_1 + e_2$ will give the desired result. And this involves only one triangle, viz., ZPA.

$$e_1 \sin h \sin H = c \cot l \sin H - c \cot p \cos h \sin H$$

$$e_2 \sin h \sin H = c \cot p \sin H^1 - c \cot l \cos h \sin H$$

Now, combine the first term of the first equation with the second term of the second equation, and noticing that $\sin H = \sin (H^1 - h) = \sin H^1 \cos h - \cos H^1 \sin h$: we shall have

$$-c \cot l \cos H^1 \sin h$$

Then combine the first term of the second equation with the second term of the first equation, and noticing that $\sin H^1 = \sin (H + h) = \sin H \cos h + \cos H \sin h$: we shall have

$$c \cot p \cos H \sin h$$

Lastly, add the two equations, and divide by $\sin h \sin H$: we obtain correction of $H = e_1 + e_2 = c \cot p \cot H - c \cot l \cos H^1$, the same as before given.

EQUATION OF EQUAL ALTITUDES.

I think the best formula for this is

Equation $= c \cot S \operatorname{Cosec} p$, where S is the angle of the sun.

But this requires to be developed. I intend to do so in a pamphlet, which will also contain a new solution of the "Double Altitude Problem:" to find the Latitude, the Time at the Ship, the Longitude, and the Deviation of the Compass.

This method dispenses with the necessity of making corrections, as in Ivory's, for the erroneous supposition that the Declination is constant; as also with the guessing or tentative method adopted by Sumner.

Connected with the above is what I called the "New Deviation Problem" (see my "Marine Board Catechism," Part II., page 18). I find that the same principle has been noticed by Mr. Riddle. But it is surprising that he did not notice its applicability to his ingenious Second Method for equal Altitudes; as it would have rendered his complex remarks unnecessary. The principle may appropriately be compared to a valuable gem which has been passed unnoticed from not being sufficiently polished.

The principle referred to (when expressed in general terms) is: if a Formula gives an arc by its Sine or Cosecant, it is impossible to determine from that Formula whether the arc should be greater or less than 90° .

The best way to remove this ambiguity is to ascertain the conditions under which the arc is 0° , when 90° , and when 180° . Consequently, it will then be evident whether the arc (in any particular Problem) should be greater or less than 90° .

All other methods give rise to rules, which are very perplexing to seamen.

JAMES GORDON.

Morden College, Blackheath, S.E.,
8th April, 1876.

NAUTICAL QUESTION.

To the Editor of the "Nautical Magazine."

SIR,—“I am in an examination-room, and have the question as below given to me, and having no chart to prove the bearings correct, should I be prevented from arriving at a correct solution of the question as given.”

Mr. White, after seeing your answer to my PORTION of the question in your issue for this month, desires me to put the question in the form under, as it was given to me in the first place, and I do so.

Please answer the question in your April number, and oblige,

Your obedient servant,

C. H. BEDINGFIELD.

Bristol, March 8rd, 1876.

Question.—A steamer entering the Channel at 8 a.m. observes Dover, lat. 51° 08' N., long. 1° 19' E., bearing W. $\frac{1}{2}$ S., and Calais lat. 50° 58' N., long. 1° 51' E., bearing E.S.E. and at 10 a.m. Dover bore N.N.W., and Calais N.E. by N. Find the rate of steaming.

[The answer given to Mr. Bedingfield's direct question in the March number was correct. The position assigned to the ship was on the land some two miles and a half to the westward of Dover.

In the question now proposed, the second position places the ship on the beach about five miles to the southward of Boulogne. There can be no useful purpose in continuing a discussion of such unpractical questions, nor will it avail to change the question by introducing compass errors from any cause; for such error must affect both the bearings alike.

The distance between the two assumed positions is about thirty-five miles, and therefore the rate of steaming in still water would be seventeen and a half miles an hour. Mr. Bedingfield, without consulting any chart, might at once have pronounced it to be an impossible position from the bearing of Calais given as N.E. by N.—ED. N. M.]

RULE OF THE ROAD AT SEA.

To the Editor of the "Nautical Magazine."

SIR,—Referring to a letter on this subject in your last month's number signed "Cornelius Jones," I think the article as it stands is quite clear and distinct, and the addition proposed quite unnecessary. A sailor regards a ship as under way, when she is under command of her helm, technically called steerage way. A ship becalmed, hove to, or in any position where she is not under command of her helm, cannot be considered under way, and I opine should use the signal given in the following paragraph (c)

Faithfully yours,

CAPTAIN.

DOUBLE ALTITUDES.

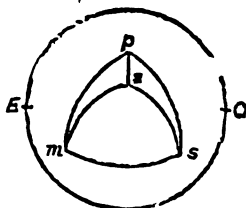
To the Editor of the "Nautical Magazine."

SIR,—I venture to send what appears to me an easy method of finding a ship's position at sea, by simultaneous altitudes of moon and sun, or other object, lunar distance of which is given in "Nautical Almanac." I have not seen it in any work on Nautical Astronomy, though of course it must have occurred to, and been used by, many acquainted with spherical trigonometry.

Having taken the altitudes of sun and moon, and noted time by chronometer, find, from the "Nautical Almanac," the declinations of the sun and moon, and lunar distance, for Greenwich time of sights, i.e., for chronometer time.

Then, in figure, let p represent the pole

"	"	z	"	zenith
"	"	m	"	moon
"	"	s	"	sun



Have given $p s$ sun's polar distance

"	$p m$	moon's	"	"
"	$z s$	sun's zenith	"	or co-alt
"	$z m$	moon's	"	"
"	$m s$	lunar distance		

(1) In spherical triangle psm have three sides given to find angle psm . To do which have formula

$$\text{Log cos } \frac{1}{2} psm = \frac{\text{Log cosec } ps + \text{log cosec } ms + \text{log sin } \frac{1}{2} s + \text{log sin } (\frac{1}{2} s * pm)}{2}$$

(2) In triangle zsm have three sides given to find angle zsm , formula similar to above, viz.—

$$\text{Log cos } \frac{1}{2} zom = \frac{\text{Log cosec } zs + \text{log cosec } ms + \text{log sin } \frac{1}{2} s + \text{log sin } (\frac{1}{2} s \dagger - zm)}{2}$$

(8) Then if great circle, joining sun and moon, pass between pole and ship's zenith, take sum of angles zsm and psm ; if not, subtract angle zsm from psm for angle psz . By roughly drawing a figure, appropriate for the particular case, it will be seen whether to take the sum or difference; in all cases where the latitude by account is over 24° , take the difference.

Then in triangle psz have angle psz , and sides containing it, given to find pz , the co-latitude. Formula for this,

$$\text{Log tan } zs + \text{log cos } psz = \text{log cot } w (a)$$

$$\text{Log cos } zs + \text{log cosec } w + \text{log sin } (w + ps) = \text{log sin lat.}$$

(5) For hour angle, and thence longitude,

$$\text{Log sec lat} + \text{log sin } psz + \text{log sin } ms = \text{log sin } zps = \text{the hour angle.}$$

(6) For azimuth,

$$\text{Log sec lat} + \text{log sin } psz + \text{log sin } ps = \text{log sin azimuth.}$$

The only novelty is that of using the lunar distance taken from "Nautical Almanac," which saves labour. To many of your subscribers better formulae may occur; I have given those which I use at sea.—Yours, &c.,

SHIPMASTER.

[A "Shipmaster" says he has never seen the method of finding a ship's position at sea by "simultaneous altitudes of sun and moon" in any work on Nautical Astronomy.

He may be referred to Riddle's work on Navigation, first published in 1824, and it is to be found in all the subsequent editions of that work, by Edward Riddle, and where the aid of the chronometer is not required, provided the lunar distance be observed.

"Shipmaster" appears to overlook the fact, that in calculating the lunar distance from the Greenwich time shown by the chronometer, he assumes that time to be correct; but in fact a very small error in the time so assumed would vitiate the calculated distance to an extent which would render the result of the problem valueless.

* s standing for sum of sides, ps , pm , ms .

† s " " " " zs , sm , ms .

Riddle, on the contrary, with the observed lunar distance and the altitudes, finds the Greenwich time, and from well-known problems in spherical trigonometry, finds the latitude and the time at ship, and hence the longitude.

But Raper, in his valuable work, gives practical rules for those who may be ignorant of spherics, for finding the latitude from the simultaneous altitudes of any two celestial bodies, and with a chronometer on board : when the latitude is known the longitude is easily found.—Ed.]

BOOKS RECEIVED.

History of Merchant Shipping and Ancient Commerce. In 4 vols. Vols. 3 and 4. London: Sampson Low & Co. 1876.

In these concluding volumes of his great history, Mr. Lindsay sustains the high reputation he gained by the publication of the earlier portions. In the present volumes we find the events dealt with bring us nearer to our own times, and instead of *ancient* shipping and commerce, the matters now treated of are the Navigation Laws and their abolition, the development of steam propulsion and other modern improvements, the condition of modern merchant sailors, the establishment of our present merchant shipping laws, and even the recent agitation in reference to "Our Seamen." From the early part of the present century, until 1875, Mr. Lindsay leads us through each event, and shows us the gradual growth of systems in a careful and circumstantial manner. His exactness in regard to details, is often striking, and one feels that the historian is impartial and veracious. Indeed, for many years, Mr. Lindsay was himself a leading actor in regard to Mercantile Marine legislation, and, accordingly, simply recounts his own personal experiences. It is interesting to know the opinion of such a man as Mr. Lindsay upon the proposals and suggestions for further legislation at the present time. We accordingly extract the following from the concluding portion of his third volume, observing, at the same time, that it is satisfactory to us to find so eminent a man in complete accord with the views so often expressed in the *Nautical* :—

"My advice, therefore, to the House of Commons, if an old member may venture to give it, would be to do nothing next session in the way of fresh legislation, but to confine itself to necessary amendments, and to the codification of existing laws, so that shipowners may have one law for their guidance ; at present they are bewildered by the numerous fragmentary laws now in force. But, in addition to whatever re-organisation and changes may be found necessary, increased facilities would still seem

requisite for the immediate payment of seamen's wages on their discharge ; and, though the mode of inquiry into the causes of the loss of life and property at sea has already been altered, greater rigour is still demanded for such inquiries, and more prompt means of detecting and punishing persons who ignorantly or negligently lose the vessels in which they serve. In cases of wilful loss, which I hope and believe are of rare occurrence, the law cannot be too prompt, too stringent, nor too severe. A man who *wilfully* loses his ship, I rank without hesitation with the 'villain and the murderer.' Nor should I have much more mercy on the shipowner who recklessly loses his ship, or who is accessory to her loss ; and I should subject to punishment, though in a different and more modified form, any shipowner who, either ignorantly or negligently, sends his ship to sea in an unseaworthy state. In these matters the law is still open to improvement, both as regards greater facilities for the discovery of crime, and its prompt punishment, arising, as this does, in no small degree, from its too complex character. Although the shipowner is now made liable for criminal neglect, and cannot, by contract, relieve himself from this liability, such neglect is difficult of proof, and a jury deciding against a shipowner on a question of damages may often hesitate to make him criminally responsible. If it were possible to enforce this liability in all cases where guilty—if every shipowner were made to feel that the proper construction, equipment, loading, manning, and navigation of his ship were matters to which it was his duty to attend, and if these duties were enforced, it would produce much more salutary effects in the way of saving life and property at sea than any Government surveys with a legion of inspectors at their back. Each one of these relieves the shipowner from a duty which belongs to him alone, and relieves, or, at the least, might relieve him from a part of his responsibility ; for if, as in the case of compulsory pilotage, a shipowner is relieved from responsibility in case of accident, he cannot, in common justice, be held criminally liable when he has acted in conformity with such laws as have been passed for his guidance and control."

After reading the above extract, we are very surprised and sorry to observe that Mr. Lindsay, who has always been a champion of unfettered commerce, should, at the present moment, have become the strongest supporter of unqualified and unlimited interference with commercial ships.

The fourth volume is devoted to a description of the development of steam-power in connection with shipping, and the great changes wrought thereby in the carrying on of maritime commerce. The narrative is full of interest, and we can only refer our readers to the book itself to obtain a just notion of its merits. Undoubtedly, all who have an intelligent interest in maritime matters ought to possess these valuable volumes ;

they constitute important works of reference, as well as being brilliant and entertaining books for the general reader. Mr. Lindsay's enforced leisure has been turned to good account in the production of these volumes, and we do not doubt that the success of the work will, ere long, be announced by the publication of another edition.

Wellbank's Australian Nautical Almanac and Coaster's Guide for the Southern and Eastern Coasts of Australia, &c., for 1876. Edited by S. S. Sustenance, Marine Surveyor, &c. Sydney: J. Reading & Co.

THIS is an exceedingly compendious little work. It contains the essentials of the "Nautical Almanac"—a collection of useful tables and miscellaneous information, and copious sailing directions for all the ports in New South Wales, Queensland, Victoria, &c. The information appears to be accurate, and the work itself is likely to be of great service to maritime men not well acquainted with Australian ports.

Commodore J. G. Goodenough. A brief Memoir, by Clements R. Markham, C.B. Portsmouth: J. Griffin & Co., 2, The Hard, Portsea; and London, 15, Cockspur Street, Pall Mall East, S.W.

THIS little book is an affectionate tribute to the memory of a brave and good man, written by a friend and former messmate. Not using many words of his own, Mr. Markham brings together the testimony of numerous other friends of the deceased officer to show the sterling qualities of the man, and the great respect in which he was held. The story of his painful death is so well known that we need not revert to it. It is sufficient for our present purpose to say that if any of our readers desire to possess a simple record of the noble life and untimely death of a truly admirable man, they cannot do better than to obtain a copy of Mr. Markham's little book.

A Digest of the Spanish Customs, Laws, and Regulations, and Handbook of Information for Shipmasters Trading to Spain. By Charles Quantin, clerk at the British Vice-Consulate, Huelva. Cadiz: D. Federico Joly. 1876.

THIS pamphlet is published at an opportune moment. There have been recently sad complaints of exorbitant charges, and very summary procedure for enforcing payment of such charges, in Spanish ports, and any publication which states with tolerable accuracy the nature and amount of dues legally leviable, will certainly be serviceable to shipmasters trading to Spain. The Spanish policy seems very much like a recurrence

to the old system of protection in force previously to 1870, and is not at all likely to help Spain out of her present financial difficulties, or to assist her in reviving her lost commerce. Besides the information as to dues properly chargeable, the author, who has had command of a ship, gives other information likely to prove useful to merchants, shipowners, and shipmasters, who are concerned in trade with Spain.

ENGLAND AND EGYPT.—II.

EGYPT and her affairs still continue to attract a considerable amount of attention throughout Europe. Since the appearance of our last number, the contents of Mr. Cave's Report have been made known to the world, and the publication of that able and important document, together with the recent postponement of the payment of all bonds and orders on the Egyptian Treasury, have thrown a flood of light on the real position of Egyptian finance. We believe the Khedive has done wisely in taking the bull by the horns, by publishing the Report, and showing clearly the exact state of his country's affairs. This frankness is in keeping with his policy in the past, and the slight decline experienced by Egyptian Stock in consequence of his candour, has more than justified his determination. The new policy, moreover, is a healthy reaction upon the morbid dislike for publicity that has always characterised the Egyptian department of finance. According to Mr. Cave, no European has ever been allowed to enter the doors of the office presided over by the Finance Minister. This aversion to foreign intrusion arose in all probability from nothing more than the old Moslem dislike for European interference; but looking to the almost hopeless confusion into which Oriental financiers have generally reduced their affairs, it can hardly be maintained, even by Orientals themselves, that Eastern statesmen are especially calculated to win distinction in the administration of national exchequers.

The main results of Mr. Cave's investigations are not difficult to summarise. It appears that at the present moment Egyptian liabilities amount to about £75,000,000. This sum is made up of various loans raised at different times, and under varying conditions, since 1864; and the whole of these debts Mr. Cave proposes to consolidate, and repay by annuities in fifty years. The annuity necessary to pay off this amount, with interest at the rate of 7 per cent., in that time, would be £5,434,425.* In the opinion of Mr. Cave, Egypt has ample

* £2872,606 of this amount would be borne by the Khedive's private estate.

resources at her command for meeting this heavy liability. Her trade has made vast progress during the Khedive's administration, and there seems little reason to doubt that, with proper management, it is capable of still greater development. In the words of the Report, "The annual charge upon the people of Egypt is heavy, and has increased; but the power of meeting it—that is, the wealth of the country as indicated by its exports—has increased in a far greater degree."

The principal causes that have led to the present critical condition of Egyptian financial affairs are the "ignorance, dishonesty, waste, and extravagance of the East," and "the vast expense caused by hasty and inconsiderate endeavours to adopt the civilisation of the West." These are heavy charges boldly made; but Mr. Cave does not hesitate to meet them by thorough-going remedies. He recommends that some person who would command confidence—such, for instance, as the financial agent sent out by Her Majesty's Government—should be appointed at the head of a control department to superintend the revenue, and that inspectors should be sent through the country to make a close investigation of the mode in which the taxes are raised, with a view to preventing the oppression and extortion that are now undoubtedly being practised. He further points out the necessity of placing a limit upon the lavish hospitality with which the Khedive entertains all his visitors, and of bringing to a close the annual grants to the opera and the turf. By economies of this kind only, he estimates that an annual saving of £1,000,000 may be effected. It appears also that upon the private estate of the Khedive tremendous waste has been incurred by injudicious management, and by hasty attempts to establish the manufacture of sugar without due consideration. The most important industry upon the private estate is the cultivation of the sugar cane and the sugar manufacture; but the ill-judged efforts that have been made to induce prosperity have had most unfortunate results. "Very large factories were built before the land was ready to supply them. They have not been placed in the middle of the estates, but near the main railway; consequently the canes have to be brought many miles by locomotives to the factories, involving a large consumption of coal, and making supervision more difficult. Some factories, full of costly machinery, have been abandoned; others left unfinished, with the machinery all ready on the spot. Steam machinery for irrigation has been erected and never used." However, "much economy has already been effected," and "it would be unadvisable that these estates should be given up. But the original faults can hardly be remedied, and it seems impossible that there should ever be an adequate return for the capital, especially as so much was provided by loans at a high rate of interest."

Mr. Cave's Report is certainly a lucid summing up of the present

position of Egyptian affairs, and although it may be admitted that it conveys no important revelation of facts with which the world was not already acquainted, it transforms much that has hitherto been mere report and hearsay into clear and concise particulars. The first question that now arises is the possibility, or rather the probability, of the reforms being carried out which are indispensable for Egypt's recovery from her present condition. Turning to her commercial position, we certainly find everything looking hopeful. Her exports have risen from an annual value of £4,454,425 in 1861-62 to £14,601,148 in 1872-73. These figures look promising, but even here we may find grounds for apprehension. Had the trade of Egypt remained stationary during those twelve years, there would have been some excuse for the financial complications that have come about, but with such a run of prosperity as these statistics indicate, it seems impossible to doubt that grave errors of administration must have been made to reduce the country's affairs into a state bordering on insolvency. The "ignorance, waste, dishonesty, and extravagance of the East," would seem to have much to account for; but, judging even from the opinion of Mr. Cave, who seems by no means to take a despairing view of the case, it must be admitted that there are still grave reasons for apprehension as to the future. Experience is often a harsh teacher, but it is generally a successful one; yet looking to some of the facts set forth in Mr. Cave's Report, it appears that Egyptian administrators are not too ready to acquire knowledge even from actual trial. Speaking of the losses that have been incurred by injudicious management in connection with the private estate, to which we have already referred, Mr. Cave states that it is "with great apprehension that we hear of the capital account of the Daira being still open, and of vast schemes of irrigation, costing millions, being under consideration." Some consolation, however, may be drawn from the fact that the construction of all new railways, except that of the Soudan, has been suspended, and even the Soudan line is to be confined to a distance of 200 miles instead of being laid down for 550 miles, as was originally intended. It would appear that those who have the control of Egypt's commercial and industrial affairs have much to learn as yet in the way of economy.

There can be no doubt that Egyptian administrators have formed an exaggerated notion with regard to the resources of their country. Egypt has been taxed beyond her strength, and the efforts that have been made to hurry her on prematurely to prosperity have largely helped towards reducing her to her present unfortunate position. Mr. Cave's charges on the score of extravagance are amply justified, and Egypt's well-wishers can now only hope that those who hold the reins of government will learn the value of caution and economy. Unless a vast change is made

it is impossible to entertain a doubt as to what will be the result. To paraphrase the words of the French General, all these grand railway systems, irrigation schemes, and costly sugar factories, may be magnificent, but they are not sound trade.

In our opinion the "ignorance and dishonesty of the East," have fully as much to answer for as the reckless manner in which the Egyptians have endeavoured to adopt European civilization. Mr. Cave was informed that, "one of the causes which operates most against the honesty and efficiency of native officers is the precarious tenure of office The public servant of Egypt, like the Roman Pro-Consul too often tries to make as much as he can out of his office." Hence the excessive dishonesty to which a reference has already been made. Should Mr. Cave's informant have pointed out the true cause of this lack of principle among Turkish and Egyptian officials, a remedy is not difficult to find; for by a stroke of his pen, the Khedive may exchange all the men who now use their positions as a means of robbery and extortion, for honest and upright servants. We should be glad to believe that Mr. Cave has interpreted the evil correctly, but at the same time we are inclined to the opinion that he has made scarcely sufficient allowance for the difference between Eastern and Western opinions on questions of honesty and straightforward dealing. It is a well-known fact that Orientals have always regarded these and similar virtues in a very different light to that in which they are looked upon in Western Europe. For some reason or other, which we shall not here attempt to investigate, they consider them as matters of very trifling importance in everyday life; and we fear that Oriental public servants will labour under this peculiarity whether their tenure of office be permanent or brief. It seems to us that this is one of the first abuses to be reformed, but the possibility of reform is a doubtful question. Of all the causes which can rob a nation of its life and soul, none are more potent than a corrupt and inefficient public service. It may be remembered that the mere fact of dishonesty and inefficiency being generally prevalent, speaks badly for the general morality of a nation, but when we come to the practical working of an executive in which these characteristics are rife, it is difficult to over-estimate the evil influence such vices possess, particularly in a country like Egypt, where the main portion of the public service (excepting of course the army) is composed of officers whose duty it is to collect, or superintend the collection of the revenue. The tax-gatherer who is both extortionate and dishonest is a double curse to his country. His extortion acts as a check upon the producer, while his dishonesty deprives the public Treasury of its due. It would appear that Egyptian officials suffer from these failings to a very considerable extent, and it seems to us that the only remedy for this state of things is to be found in a pretty general substitution of

European for Egyptian public servants. It will not avail to make the change merely among the higher grades of the service. A Control Department such as that suggested by Mr. Cave would probably fail to work a lasting reform unless backed up by a thoroughly efficient body of subordinates. The Report contains no suggestion as to the nationality of the inspectors who are to be appointed for the prevention of dishonesty, but we presume they are to be Europeans, as we are convinced that the employment of Turks or Egyptians to fill these posts would leave matters exactly as they are, in spite of any efforts the new Control Department may put forth. As an illustration of the corruption that pervades the Egyptian public service, Mr. Cave points out that whereas the revenue from the Custom House at Alexandria for the year 1872 should have amounted to £558,727, the return of receipts from all parts amounted to no more than £541,215. Mr. Cave believes these figures may be relied on, and if so it is easy to imagine to what extent speculation and dishonesty are carried.

The new Controller will, however, have work to do in addition to placing a check on corrupt officials. He will have to make a careful examination of the means at present relied on by Egypt for filling the public Treasury. Among these there are some which seem to have been devised for the special purpose of throwing impediments in the way of industrial progress. For example, in Egypt, as most of our readers are aware, the cultivation of the land is entirely dependent on the Nile; every inch of ground which is not watered, either by the annual inundation or by artificial methods, becoming so much barren sand directly it is left unmoistened. Yet Egyptian administrators have not hesitated to levy a duty on the shadoofs or waterwheels by means of which the water is lifted for conveyance from the river and canals to the fields. Bearing in mind the fact that without the waterwheel a large tract of country must become a waste, the bad policy, or rather the folly of inflicting such a tax, cannot be questioned. The same may be said of the duty levied in certain districts on the date palm trees. The tax is imposed at a certain rate per tree, and the result is that it acts as an unqualified discouragement to any extension of the cultivation of the date. Abuses and errors of this kind will have to be at once abolished if the resources of the country are to be developed to their full extent, as they will doubtless have to be to enable Egypt to meet all her liabilities.

According to the Report, "an examination of the contracts of the several loans shows that every available portion of the revenue has been pledged, sometimes more than once," and further that "the revenue has certain elements of elasticity in it, but these are not likely to be very active in operation." If Egypt, therefore, is to be rescued from her present critical position, her income will have to be increased by a

development of her existing resources and by the reformation of established abuses. It is hoped that the military expenses may be curtailed to a certain extent. In the opinion of Mr. Cave, it is probable that the Khedive will retire as soon as possible from Abyssinia and the Equator. "Extensions of territory and of trade may have attractions for the Khedive but he is not dazzled by the barren glory of war." We question whether any great saving will be effected in this direction. The "barren glory of war" may have no attractions for the Viceroy, but Egyptian ambition in the direction of an extension of Egyptian territory will scarcely be restrained by the fear of incurring expense.

Looking to the position of affairs as shown by the Report it is evident that the situation is almost worse than "critical." It is such as must cause the gravest apprehension to those who are desirous of aiding Egypt to gain the high position among nations she seems to deserve. Mr. Cave points out in what manner the loans, revenue, and expenditure, may be manipulated so as to leave the country in a hopeful position, but his scheme pre-supposes thoroughly good management. It appears to us that this improved administration is to be obtained only by some European power taking in hand the conduct of the national business, and that England undoubtedly possesses the prior right to interfere. The purchase of the Canal has given us an unmistakeable interest in the country, and we may fairly take upon ourselves the privilege of playing a somewhat prominent part in the management of Egypt's internal administration. Whatever may be the merits of foreign intervention, it is obvious that England has taken up a position which she cannot afford to abandon. We can allow the influence of no other European power to surpass our own unless we are prepared to give up the right for which we have just paid £4,000,000. We regret to notice that an agitation has been set on foot for the neutralisation of the Canal. From England's experience on the Black Sea, she ought by this time to be in a position to see the futility of attempting to establish schemes of this sort. Of all the European nations she has the least reason to see the Canal made neutral, even if permanent neutralisation were possible. She would be better able either to maintain or to impede the right of way through the canal than any other nation, and she should be the very last to endeavour to further a system that would diminish rather than increase the strength of her position as compared with other powers. In our opinion, the Canal must always be considered as a portion of Egyptian territory, while the sovereignty over its waters must remain with the territorial owner of that country.

At the present moment, the aspect of the Eastern question generally is rather foreboding, and England may well congratulate herself that she has at the head of her foreign affairs a statesman who will not fail to take

a comprehensive view of the situation. The next few years will probably bring about some important changes in the East, but whatever may happen we have no doubt that England will be found ready to play the part which fortune seems to have assigned to her. It may be that she will give offence by pushing to the front, but we have no fear that any action she may take will ever cause her to feel ashamed, either on the score of straightforward dealing, or on the ground of having shown a lack of courageous enterprise.

DECK CARGOES.—A large and influential deputation, representing manufacturers of agricultural implements, plant and machinery of all kinds, has waited upon the President of the Board of Trade (with whom was Mr. Farrer), at Whitehall, for the purpose of asking the Government to exempt machinery from the operation of the 15th and 16th clauses in the Merchant Shipping Bill, with regard to deck-loading. After the deputation had expressed their views, the President said he supposed every set of persons would think their own trade should be exempted, and then they would be perfectly satisfied with the Bill; but by the time they had gratified everybody in that way, they might as well omit the clause altogether. He confessed himself gratified with what he had heard from so many people who understood the shipping trade, for it seemed to be unanimously in favour of the Bill. He did not believe there was any member present who would suppose that the House would be satisfied at thus leaving the question of deck cargoes alone as it was, and nobody there had proposed any better terms for this particular trade than that in the Bill, which was simply removing what he thought must appear objectionable to everybody, which was that absolute premium on exemptions now existing induced people to put their cargoes in most dangerous places. The Government said that premium on deck cargoes ought to be taken off, and that was all they proposed. If any members thought they could get more than that, with reference to deck cargoes, they must be very sanguine people, for after the feeling stirred up by Mr. Plimsoll, he thought they were all agreed to prevent absolute prohibition of deck cargoes, and he did not think a clause to meet that could be more favourable than that in the Bill. There was no proposal to impose a new tax. The dock dues were distinctly levied on cargo space, and there was no exemption from them by any Act of Parliament for any space except such as was unavailable for cargo.

MONTHLY ABSTRACT OF NAUTICAL NOTICES.

No.	PLACE.	SUBJECT.
84	BAY OF BENGAL—Madras	Prohibited Anchorage near Telegraph Cable.
85	JAVA SEA—North Watcher Island	Sunken Wreck near.
86	CHINA—Formosa Strait—Turnabout Island	Sunken Rock North of.
87	NEW BRUNSWICK—Passamaquoddy Bay—Mijic Bluff	Establishment of a Light.
88	NEW BRUNSWICK—St. Croix River	Establishment of Beacon Lights.
89	IRELAND—East Coast—Burford, Kish, Codling, Ridge, and India Banks	Alteration in Buoyage.
90	ENGLAND—South Coast—Southampton Water Entrance	Shoal in Fairway.
91	MEDITERRANEAN—Spain—Tarragona	Non-existence of Pier Light.
92	MEDITERRANEAN—France—Marseille	Establishment of a Light-Vessel.
93	MEDITERRANEAN—Italy—Leghorn	Breakwater North Light.
94	MALTA—Grand Harbour—Gun Wharf and Magazine Points	Establishment of Buoys off.
95	ENGLAND—East Coast—Farn Islands—Longstone Lighthouse	Establishment of Fog-Signal.
96	ENGLAND—East Coast—Newarp Light-Vessel	Intended Alteration in Light.
97	ENGLAND—East Coast—Goodwin Light-Vessel	Intended Alteration in Light.
98	MEDITERRANEAN—Egypt—Alexandria	Alteration in Breakwater Light.
99	BLACK SEA—Odessa	Alteration in Quarantine Mole Light.
100	ADRIATIC—Vilosca	Establishment of Provisional Light.
101	ADRIATIC—Curzola	Alteration in Mole Light.
102	ADRIATIC—Port Lussu Piccolo—Colludarz Point	Establishment of a Light.
103	JAPAN—Nipon, West Coast—Tsuno-sima (Kado-sima)	Establishment of a Light.
104	PORTUGAL—River Tagus Entrance	Non-existence of Shoal.
105	ENGLAND—East Coast—Yarmouth—Hewett Channel	Alterations in Channel, Buoys, &c.
106	ENGLAND—East Coast—St. Abb's Head	Establishment of Fog-Signal.

NAUTICAL NOTICES.

84.—BAY OF BENGAL.—*Madras*.—With a view of preventing injury to the telegraph cable at Madras, the following directions have been given, viz.:—Vessels are prohibited from anchoring in any part of Madras roadstead southward of the line of the lighthouse bearing West.

85.—JAVA SEA.—*North Watcher Island*.—The wreck of the steamship *Willem Kroonprins der Nederlanden* lies sunk in 13 fathoms, N. $\frac{1}{2}$ W., 13 miles from North Watcher island.

86.—CHINA.—*Formosa Strait*.—*Turnabout Island*.—The Peninsula and Oriental Company's steamship *Sunda*, having occasion to run for shelter under Haitan island, struck on a sunken rock to the northward

of Turnabout island. Commander E. M. Emond, of the *Sunda*, estimated that the rock was from 1 mile to $1\frac{1}{2}$ miles, North of Turnabout island. No further information of the position of the danger is afforded.

87.—NEW BRUNSWICK.—*Passamaquoddy Bay*.—A light is now exhibited from a lighthouse recently erected on Mijic bluff, entrance of Magaguadavic river, Passamaquoddy bay. The light is a *fixed white* light, elevated 130 feet above high water, and should be seen 15 miles. The tower, 29 feet high, is a square wooden building, painted white. Position, lat. $45^{\circ} 7' N.$, long. $67^{\circ} 54' 30'' W.$

88.—NEW BRUNSWICK.—*Passamaquoddy Bay*.—*St. Croix River*.—Beacon lights are now exhibited on Spruce point, and on St. Mark point, north side of St. Croix river. Both lights are *fixed white* lights, elevated 32 feet above high water. The towers, 28 feet high, are open framework, and painted brown. Position, Spruce point light, lat. $45^{\circ} 10' N.$, long. $67^{\circ} 10' 30'' W.$; St. Mark point light, lat. $45^{\circ} 10' 20'' N.$, long. $67^{\circ} 12' 20'' W.$

89.—IRELAND.—*East Coast*.—*Burford, Kish, Codling, Ridge, and India Banks*.—Owing to the changes that have taken place in the formation of the Burford, Kish, Codling, Ridge, and India banks, the following alterations and additions are about to be made in the buoyage thereof, viz. :—

BURFORD BANK.

North Buoy will be changed to a *conical buoy chequered black and white*, with staff and globe.

South Buoy will be moved half a cable to the westward, and moored in 4 fathoms. The staff and globe will be removed.

KISH BANK.

The Kish, Bray, and Codling banks will, in future, be considered as one danger.

North or No. 1 Buoy.—A *black conical buoy with staff and globe* will mark the northern extremity of these banks; it will be moored in 6 fathoms N.N.W. $\frac{1}{2}$ W., one cable from its present position.

No. 2 Buoy.—A *black can buoy* will be moored E. $\frac{1}{2}$ S., $4\frac{1}{2}$ cables from the position of the present buoy.

No. 3 Buoy.—A *black can buoy* will be moored in 17 fathoms E. by S. $\frac{1}{4}$ S., 6 cables from the position of the buoy now marking the south end of the Kish bank, and which buoy will be removed.

No. 4 Buoy.—A *black can buoy* will be moored in about 8 fathoms S. by E. $\frac{1}{8}$ E., 3 miles from No. 3 buoy, with Great Sugar-Loaf N.W. by W. $\frac{1}{2}$ W. westerly, and Wicklow Head S.W. $\frac{1}{2}$ W. westerly.

The black and white vertical striped buoy now marking the east end of Codling bank will be removed.

S.E. or No. 5 Buoy.—A black conical buoy will be moored on the south-eastern extremity of the Codling bank S.S.W., $8\frac{1}{2}$ miles from No. 4 buoy, with Great Sugar-loaf N.W. $\frac{1}{4}$ W., and Wicklow Head S.W. by W. $\frac{1}{4}$ W.

S.W. or No. 6 Buoy.—A conical buoy, painted black and white in vertical stripes, will be moored in about 20 fathoms N.N.W. $\frac{3}{4}$ W., $3\frac{1}{2}$ miles from No. 5 buoy, with Great Sugar-loaf N.W. $\frac{1}{4}$ W., and Wicklow Head S.W. $\frac{1}{4}$ S.

SOUTH RIDGE AND INDIA BANK.

These banks will in future be considered as one danger.

Ridge North Buoy.—A conical buoy, painted with black and white horizontal bands with staff and globe, will be moored at the north end of the Ridge in about 8 fathoms, with Great Sugar-loaf N.W. by N. northerly, and Wicklow Head lighthouse S.W. by W. $\frac{1}{2}$ W.

India Bank South Buoy.—The south end of the India bank will be marked by a conical buoy, painted with black and white horizontal bands. No alteration in position.

These alterations are expected to be completed by the middle of June.

90.—ENGLAND.—*South Coast.*—*Southampton Water Entrance.*—Information has been received that on the shoal ground in the fairway of the entrance to Southampton water, nearly midway between Calshot castle and Calshot light-vessel, over which a depth of 26 feet was considered to exist, a small patch of 22 feet, at low water spring-tides, has been found. The shoal is composed of gravel and mud. From it, Calshot castle coast-guard flag-staff bears N. $41\frac{1}{2}^{\circ}$ W.; Luttrell tower, S. 88° W.

91.—MEDITERRANEAN.—*Spain.*—*Tarragona.*—With reference to Nautical Notice, No. 278 (December, 1875), on the exhibition of a green light at the extremity of the west, or inner, mole in the course of construction at Tarragona, information has been received that no light is now exhibited on the end of the western mole.

92.—MEDITERRANEAN.—*France.*—*Marseille.*—The south-west entrance to the national basin of Marseille will be closed, that the outer wall carried up uniformly with the adjacent parts, and that a light-vessel exhibiting three red lights, is now moored in a line with, and 760 yards from, the north end of the outer wall of the basin, to which distance the outer wall or jetty is to be continued.

Note.—Vessels are not to pass between this light-vessel and the end of the outer wall.

93.—MEDITERRANEAN.—*Italy.*—*Leghorn.*—The following alteration has been made in the light on the north-end of the breakwater at Leghorn, with the view of enabling vessels making the port from the north-

ward to avoid the Meloria bank, viz. :—The light now shows a section of green light through an arc of 65° covering the Meloria bank.

Note.—Vessels from the northward making the port should keep in the white light when passing the Meloria bank.

94.—MALTA.—*Grand Harbour.*—The ledges of rocks lying off Gun-wharf and Magazine points are now marked by red pole buoys.

95.—ENGLAND.—*East Coast.*—*Farn Islands.*—*Longstone Lighthouse.*—About the 1st July, 1876, it is intended to establish a powerful fog-horn on Longstone rock, Farn islands. The horn will give two short blasts immediately following each other every two minutes.

96.—ENGLAND.—*East Coast.*—*Newarp Light-Vessel.*—In order to improve the character of the Newarp light, it is intended, about the middle of April, 1877, to make the following alteration, viz. :—The three fixed lights at present exhibited from the light-vessel will be discontinued, and instead thereof one revolving white light showing three flashes in quick succession, followed by an eclipse of thirty-six seconds, the whole revolution occupying one minute, will be exhibited. The light will be elevated 36 feet above the sea.

97.—ENGLAND.—*East Coast.*—*Goodwin Light-Vessel.*—In order more effectually to mark the North Sand Head of the Goodwin Sands, it is intended, about the Middle of April, 1877, to make the following alteration in the character of the light exhibited from the North Sand Head light-vessel. The three fixed lights will be discontinued, and instead thereof one revolving white light, showing three flashes in quick succession, followed by an eclipse of thirty-six seconds, the whole revolution occupying one minute, will be exhibited. The light will be elevated 36 feet above the sea.

98.—MEDITERRANEAN.—*Egypt.*—*Alexandria.*—A fixed red light is now exhibited from the south-west extremity of the breakwater at the entrance of the Port of Alexandria, which should be seen 3 miles. The light-vessel stationed off the south-west end of the breakwater has been removed.

99.—BLACK SEA.—*Odessa.*—The two fixed red lights hitherto exhibited at the extremity of the Quarantine mole at Odessa have been replaced by one fixed red light, exhibited on the mole head. The light is elevated 22 feet above the sea, and should be seen 5 miles.

Note.—When the mole is inaccessible in bad weather, this light cannot be exhibited.

100.—ADRIATIC.—*Port Volosca.*—A provisional red and white light is exhibited from a lantern placed about 75 yards from the head of the breakwater now in the course of construction at Port Volosca, head of Quarnero gulf. The light is 22 feet above the sea.

101.—ADRIATIC.—*Curzola.*—The fixed white light exhibited at the

extremity of the new mole at Curzola has been replaced by a *fixed* light; it is elevated 20 feet above the sea, and should be seen 5 miles.

102.—ADRIATIC.—*Port Lussi Piccolo*.—*Colludarz Point*.—A *fixed green* light is now exhibited on Colludarz point, entrance to Port Lussi Piccolo (Port Augusto). The light is elevated 29 feet above the sea, and should be seen about 3 miles.

103.—JAPAN.—*Nipon*.—*West Coast*.—*Tsuno-Sima (Kado-Sima)*.—A light is now exhibited from a lighthouse recently erected on the north-west point of Tsuno-sima (Kado-sima) west coast of Nipon. The light is a *flashing* white light of the first order, showing a flash every ten seconds; it is elevated 142 feet above the sea, and should be seen 10 miles. The lighthouse, 100 feet high, is circular and built of granite. Position, lat. $34^{\circ} 21' 30''$ N., long. $130^{\circ} 50'$ E.

104.—PORTUGAL.—*Tagus River Entrance*.—With reference to Nautical Notice, No. 98 (February, 1876), on the existence of shoal ground, with 22 feet, off the north channel leading into the river Tagus, reported by Mr. C. H. Hillcoat, commanding the steamship *Agra*, notice is hereby given, that the locality in which the shoal ground was stated to have been found, has been examined, and no trace found of shoaler water than heretofore shown on the charts, viz., 25 to 30 fathoms. The shoal has, therefore, been expunged from the charts.

105.—ENGLAND. — *East Coast*. — *Yarmouth*. — *Hewett Channel*. — During the late gales the depth of water at the northern entrance to St. Nicholas gateway has decreased considerably, necessitating the following changes, viz.:—St. Nicholas light-vessel has been moved N.N.W. $\frac{1}{4}$ W. 2 cables, and now lies in $11\frac{1}{2}$ fathoms at low water, with the following marks and bearings, viz.—Cupola of St. George's chapel in line with north end of Wellington pier head, N.N.W. $\frac{1}{4}$ W.; Bradwell mill open northward of a wood at Gorleston, W. by N. $\frac{1}{2}$ N.; Scroby South Elbow buoy, N.E. by N. 4 cables. North Corton buoy has been moved W.S.W. half a cable, and now lies in 19 feet at low water, with St. Nicholas church tower its breadth eastward of Yarmouth jetty, N. by W. $\frac{3}{4}$ W.; Hopton old church in line with South end of Herring Fleet wood, W. by S. $\frac{3}{4}$ S.; South Scroby Spit buoy, North, half a mile. South Scroby Spit buoy has been moved N.N.W. $\frac{1}{2}$ W. nearly $2\frac{1}{2}$ cables, and now lies in 22 feet at low water, with South Scroby Elbow buoy, N. $\frac{3}{4}$ E. half a mile; St. Nicholas light-vessel, N.W. by N. 2 cables; North Corton buoy, South, half a mile. Vessels drawing over 15 feet water are hereby cautioned not to attempt this channel after half ebb.

106.—ENGLAND.—*East Coast*.—*St. Abb's Head*.—From 8th May, 1876, a Siren fog-signal will be established at St. Abb's head lighthouse, at a height of 245 feet above the sea. In thick or foggy weather the horn

will sound for *six seconds'* duration, with intervals of *one and a quarter minutes* between each blast.

HYDROGRAPHIC NOTICES PUBLISHED BY THE ADMIRALTY.

- No. 4.—Information respecting the revolving storms or cyclones of the Bay of Bengal, derived from a Report of the Midnapore or Burdwan cyclone, of 15th and 16th October, 1874. By W. G. Willson, M.A.
- No. 5.—Remarks on the south coast of Africa, from Cape Agulhas to Breede river, and from Groote river to Bashee river. By Mr. D. J. May, Master, R.N., and Navigating-Lieutenant, W. E. Archdeacon, R.N., 1866-68.
- No. 6.—Information relating to Sherbro river. By Navigating-Lieutenant Alfred Hackman, R.N., 1875.
- No. 7.—Additional remarks and revisions of the Sailing Directions for the coast of Ireland. By Staff-Commander James H. Kerr, R.N., in charge of Admiralty Survey, 1875.

CHARTS, &c., Published by the Hydrographic Office, Admiralty, to the end of April, 1876, and sold by the Agent, J. D. Potter, 81, Poultry, and 11, King Street, Tower Hill.

No.	Scale.		s.	d.
2742	m = 4·7	Mediterranean, Morocco :—Ceuta Bay ...	1	6

MERCANTILE MATTERS IN GERMANY.—The German Nautical Association, at its last meeting, held at Bremen, after a protracted discussion, declared itself in favour of the establishment of training-ships on the English model, and resolved to memorialise the Imperial Government in favour of such a course. The Association also resolved to request Government to publish a dictionary of sea terms, giving the meaning of technical expressions in foreign languages, and provide the means for uniform translation. The meeting also declared itself in favour of negotiations with other Governments for the purpose of securing a common understanding for the interpretation and application of Maritime Law. A member present was enabled to inform the meeting that the German Government is already engaged in such negotiations, and that it has received favourable replies to its overtures from the Governments of Great Britain and the United States.

OUR OFFICIAL LOG.

MERCANTILE TRAINING SHIPS.

ADMIRALTY CONTRIBUTIONS.

THE Lords Commissioners of the Admiralty are prepared to grant to the committee of management of a mercantile training-ship the sum of three pounds (£3) for every boy trained thereon who joins the Third Class of the Royal Naval Reserve, and a sum of twenty-five pounds (£25) for each boy trained thereon who joins the Royal Navy. The conditions under which these respective grants will be made are as follows :—

I. --CONTRIBUTIONS FOR BOYS WHO JOIN THE THIRD CLASS ROYAL NAVAL RESERVE.

Boys on joining a ship for sea-service will be eligible for enrolment in the Third Class Royal Naval Reserve, who fulfil the undermentioned conditions, viz. :—

1. They must have been for two entire years under training on board a training-ship, and subject to inspection by officers appointed by the Admiralty and the Board of Trade. They must also be under engagement to serve in a merchant ship at sea.

2. They must be 16 years of age, not less than 5 feet 1 inch in height, and 30 inches chest measurement; of robust frame, intelligent, sound and healthy constitution, free from physical defects, or malformations, and not subject to fits.

3. They must be able to read and write, and show satisfactory proficiency in cutlass, small arm, and gunnery drill, as well as in elementary subjects connected with navigation and seamanship, such as log, lead, compass, rowing, swimming, reefing and furling sails, steering, knotting, splicing, stropping, and rule of the road, and produce a certificate of good character from the captain of the training-ship.

4. When enrolled they will be supplied annually with a suit of uniform clothing, consisting of a blue serge frock, a pair of blue cloth trowsers, and a cap, of the value of £1 10s., and receive while under training the same pay as Boys First Class, viz., 7d. a day, and the same allowance per day for subsistence as members of the Second Class Reserve, with travelling passes to and from drill.

5. They will be required to undergo in each year, while in the Third Class Reserve, 28 days' drill on board a drill-ship or at a Naval Reserve battery, and be subject to discipline, and liable to serve in the same manner and to the same extent as members of the Second and First Class Reserve.

6. They will, on attaining the age of 19 years, provided they have served six months at sea, be eligible for promotion to the Second Class Reserve, and afterwards to the First Class Reserve, if in all respects qualified.

7. The service of boys in the Third Class Reserve, who pass from it through the Second into the First Class, will count at the rate of three years' service for one years' time towards pension, provided they comply with the regulations as to drill and reporting their whereabouts.

8. The usual form of enrolment will have to be obtained of a Registrar of Naval Reserve, and filled up by the boy, and on the enrolment being completed the sum of three pounds (£3) will be paid to the committee of the training-ship.

9. These regulations do not apply to boys brought up in reformatory ships.

II.—CONTRIBUTIONS FOR BOYS WHO JOIN THE ROYAL NAVY.

The sum of £25 will be paid to the committee of the training-ship for boys who join the Royal Navy who fulfil the undermentioned conditions :—

1. They must have been for two entire years under training on board a training-ship, and subject to inspection by officers appointed by the Admiralty.

2. They must be 16 years of age, not less than 5 feet 1 inch in height, and 30 inches chest measurement; of robust frame, intelligent, sound and healthy constitution, free from physical defects or malformations, and not subject to fits.

3. They must be able to read and write, and show satisfactory proficiency in cutlass, small arm, and gunnery drill, as well as in elementary subjects connected with navigation and seamanship, such as log, lead, compass, rowing, swimming, reefing and furling sails, steering, knotting, splicing, stropping, and rule of the road.

4. Application for entry into the Royal Navy is to be made by the committee of the mercantile training-ship, on behalf of the boy to the officer of the port or district authorised to enrol boys in the Royal Navy, and the sum of £25 will be paid on completion of the enrolment.

5. This payment will not be made in respect of any boy brought up in a reformatory ship.

III.

The training-ships where the committees undertake to pass boys into the Royal Naval Reserve or Royal Navy will each be supplied with one or two guns, and the requisite number of rifles, swords, and exercising sticks for the instruction of the boys; and a Gunnery Instructor will be

appointed and paid by the Admiralty to take charge of the stores and superintend the drills.

By command of their Lordships,
Admiralty, 12th November, 1875.

ROBERT HALL.

INSTRUCTIONS TO SURVEYORS.

INSTRUCTIONS TO SURVEYORS OF STEAM SHIPS.—Surveyors are informed, with reference to paragraph 180 of the Instructions, that masters and owners should in future be allowed to carry their side-lights in any position which they may prefer, either forward or aft, always providing that they show in the manner required by the regulations for preventing collisions at sea—*i.e.*, are so fixed as to throw the light from right a-head to two points abaft the beam, to do which it is of course necessary that they should be outboard of the extreme beam of the ship, and placed so as not to be obscured by any of the fittings of the vessel.—Edward Stanhope, Secretary; Thomas Gray, Assistant-Secretary.—*Circular*, No. 52. March, 1876.

NOTICE TO SHIPMASTERS AND OWNERS.—CRIMPING.—The Board of Trade having appointed an officer with a suitable police force on the River Thames to protect merchant seamen from crimps, it is hoped that the masters of ships will assist in this object by preventing all boarding-house keepers, tailors and crimps, from boarding their vessels, or having any communication with the crews. Should any of the persons referred to succeed in getting on board without permission, masters have power, under Section 237 of the Merchant Shipping Act (a copy of which is hereto appended), to detain such persons, and hand them over to the police authorities; and in such cases, they are requested to appear at the Police Court, and charge them with the offence committed. By thus acting, they will assist the efforts now being made by the Board of Trade to improve the condition of merchant seamen.

Section 237.—“Every person who, not being in Her Majesty’s service, and not being duly authorised by law for the purpose, goes on board any ship about to arrive at the place of her destination, before her actual arrival in dock, or at the place of her discharge, without the permission of the master, shall for every such offence incur a penalty not exceeding twenty pounds; and the master, or person in charge of such ship, may take any such person so going on board as aforesaid into custody, and deliver him up forthwith to any constable or peace officer, to be by him taken before a justice or justices, or the sheriff of the county in Scotland, and to be dealt with according to the provisions of this Act.”—Edward Stanhope, Secretary; Thomas Gray, Assistant-Secretary.—*Circular*, No. 58. April, 1876.

BOARD OF TRADE INQUIRIES.

Name of Vessel.	Port.	Nature of Casualty.	Judgment of Court.
<i>Ann Catherine</i> ...	Aberystwith	Stranded...	Master's certificate suspended for three months.
<i>Auxiliar</i>	Falmouth ...	Abandoned	Master's certificate returned.
<i>Coonatto</i>	London ...	Stranded...	Master's certificate suspended for three months.
<i>David and Ann</i> and <i>Queen</i> (s.) ...	Auchmithie } Aberdeen }	Collision {	Certificate of officer of watch on board the steamer suspended for 12 months.
<i>Daylight</i>	Sunderland...	Stranded...	Master's certificate suspended for nine months.
<i>Englishman</i> ...	Fleetwood ...	Ditto ...	Master's certificate suspended for 12 months.
<i>Glenaray</i>	Glasgow ...	Ditto {	Master's certificate suspended for six months, and the chief mate's for three months.
<i>Hibernia</i>	Dundee ...	Ditto ...	Master's certificate suspended for three months.
<i>Margaret M'Coll</i>	Glasgow ...	Ditto ...	Master admonished, but certificate returned.
<i>Matin</i> (s.) ...	Dundee ...	Ditto ...	Master's certificate returned.
<i>Neda</i>	Newcastle ...	Ditto ...	Ditto ditto
<i>St. Malo</i>	London ...	Ditto ...	Ditto ditto
<i>Sultana</i>	Liverpool ...	Ditto ...	Master's certificate suspended for six months.

ROYAL NAVAL RESERVE.—The following appointments have been made in the Royal Naval Reserve:—To be sub-lieutenants: Henry Govan McKenzie and John Baylay Harrison. To be midshipmen: Abel Wardlaw Best, William Henry Bond, Harry Napier Ayrton, and Cecil Frederick Sitwell.

GENERAL.

THE "NILE."—The cost of fitting the old screw line-of-battle ship *Nile* as a training vessel for the Marine Society, as well as the expense of taking her round to Liverpool from Plymouth, will be borne by the Admiralty.

SHIPS' RUDDERS.—Captain J. E. Henley has invented a plan for shipping and unshipping rudders at sea on a principle patented some years ago. An aperture, just large enough to allow the rudder to slip through easily, is cut in the counter, and, instead of pintles, an iron tube,

the length of the sternpost, is fixed to it with its after-end open, so as to admit of the rudder-post working easily up and down. The rudder is the shape of the ordinary rudder, with the exception that in lieu of the usual rudder-post an iron post is substituted, which fits the hollow tube in the sternpost in the same manner as the gudgeons fit the pintles. The heel of the iron post fits into a socket at the lower part of the tube, while the upper part works in a bearing on deck. The rudder is lowered down from the deck through the aperture, the tiller is then fixed, and the aperture closed in the same manner as the trunk of a centre-board yacht, and the vessel is again under command. By means of a screw working in the bearings upon deck, the rudder can be locked in case of the tiller ropes carrying away.

BOARD OF TRADE RETURNS.—The Board of Trade returns for the month of March declare the total value of the exports for the month to be £17,739,101 against £18,606,223 in 1875, and £20,100,814 in 1874. The following are the principal changes in the value of the exports compared with the corresponding month of 1875:—arms, ammunition and military stores, £101,411 against £186,037 in 1875 (being a decrease); beer and ale, £212,978 against £248,064 in 1875 (decrease); coals, coke, &c., £609,096 against £688,488 in 1875 (decrease); coals, &c., shipped for the use of steamers engaged in the foreign trade, 277,498 tons against 284,242 tons in 1875; cotton yarn and twist, £1,123,177 against £1,062,976 in 1875 (increase); cotton manufactures, £5,205,800 against £4,913,034 in 1875 (increase); herrings, £6,480 against £1,169 in 1875 (increase); iron and steel, £1,523,142 against £1,990,426 in 1875 (decrease); linen yarns, £156,581 against £152,512 in 1875 (increase); linen manufactures, £617,681 against £695,334 in 1875 (decrease); steam engines, £118,401 against £221,127 in 1875 (decrease); silk manufactures, £157,276 against £149,620 in 1875 (increase); British spirits, £29,086 against £24,677 in 1875 (increase); sheep and lambs' wool, £51,411 against £69,039 in 1875 (decrease); woollen and worsted yarn, £321,328 against £393,024 in 1875 (decrease); woollen and worsted manufactures, £1,946,672 against £2,059,791 in 1875 (decrease). In the Imports, the total declared value for the month was £27,451,253 against £30,920,747 in 1875, and £29,748,844 in 1874. The following are the principal features compared with the month of March, 1875:—Coffee, £952,521 against £590,166 in 1875 (increase); wheat, £1,629,438 against £1,122,280 in 1875 (increase); raw cotton, £2,870,066 against £6,709,594 in 1875 (decrease); raw silk, £185,417 against £282,457 in 1875 (decrease); sugar, £1,291,247 against £1,241,504 in 1875 (increase); tea, £510,837 against £757,384 in 1875 (decrease); tobacco (raw), £80,216 against £152,494 in 1875 (decrease); wine, £671,374 against £658,405 in 1875 (increase). With

regard to the Shipping Trade, it appears that in the month of March last the tonnage of vessels employed in the trade to foreign countries was:—entered inwards, 1,239,665; cleared outwards, 1,282,266 against 1,101,146 tons and 1,156,292 tons respectively for the same month in 1875. In the trade to British possessions, 137,139 tons were entered inwards and 276,867 cleared outwards against 148,774 tons and 260,442 tons in March, 1875. In the general coasting trade, 1,731,789 tons of British and 10,944 tons of foreign shipping entered inwards during the month against 1,893,957 tons British and 15,325 tons foreign in March, 1875. The clearances consisted of 1,631,587 tons British and 9,588 tons foreign against 1,711,825 tons British and 9,086 tons foreign in 1875. The intercourse between Great Britain and Ireland was represented by 606,154 tons British and 4,428 tons foreign entered inwards against 688,312 tons British and 4,898 tons foreign last year; and 627,513 tons British and 2,098 tons foreign cleared outwards against 617,558 tons British and 1,270 tons foreign last year. The grand total in the coasting trade for the month was 1,742,733 tons entered and 1,641,175 tons cleared against 1,909,282 tons entered and 1,720,911 tons cleared in March, 1875.

APPRENTICES TO THE SEA SERVICE.—It seems to be the desire of several well-intentioned persons to take some strong steps to increase, by forced means, the number of apprentices in British merchant ships. We have on more than one occasion endeavoured to point out that the way, and the only way, to secure the services of any person, be that person man, woman, or child, journeyman or apprentice, is to pay for such services. It is said that shipowners wish to increase the number of apprentices in their ships, but we think that the shipowners themselves give such an assertion the most positive denial, for they have never in practice taken the only means at their disposal for so doing. They have never yet offered abnormal wages to create an abnormal demand, and therefore, as a necessary consequence, an increased supply of apprentices. They know their own business too well. The question of apprentices for the sea service, like all other labour questions, can be settled by the ordinary laws of political economy; and if the shipowner for the carrying on of his business requires apprentices he can get them. If he does not get them, the public may be sure he does not want them. Why, then, should he be forced to take them? He is not, however, to be left alone even in the question of manning his ships, and we observe that a member of Parliament, the mouthpiece of a certain section, wishes to induce the shipowner to take apprentices by inserting in the Merchant Shipping Bill a clause to the effect, that when apprentices are carried, a reduction shall be made in the light-dues equal to 25 per cent. This is certainly the way to induce shipowners to want apprentices, for if by

converting the rating of any number of the boys or ordinary seamen of their present crews into apprentices they can obtain such a boon as promised, they will assuredly attempt it. We may safely assume that the demand for apprentices will at once and rapidly increase, and as an apprentice may be of any age, from ten to sixty, and as there will be no reason under such circumstances why the wages of men-apprentices of mature age need be below that of an able seaman, the supply is not likely to fall short of the demand. Whether such a clause as that proposed by Mr. Holms will increase the number of *boys* who go to sea is another question, and quite beside the mark. There is, however, an aspect which must not be overlooked. Foreign ships must be placed on the same footing as regards light-dues, and all dues as British ships; and the proposal, therefore, amounts to this: that there shall be a reduction of 25 per cent. all round in the payment of light dues. Everyone who knows anything at all about the subject knows that the light dues have been reduced already more than 60 per cent. below the amount chargeable after the permanent re-organization of the Light Service was made; that numerous exemptions and special reductions have also been made from time to time; and that the gross amount now levied is barely sufficient to meet the expenditure. If the cost of maintaining the lights must be met by the amount of light dues collected, it follows (if we are correct in assuming that those dues are already as low as they can be) that they must be raised: and it also follows that if the clause of Mr. Holms passes, whereby a reduction of 25 per cent. will at once be obtained by the shipowners all round, it may reduce the income 25 per cent. below the present cost of maintenance. This being so, we shall, if the clause passes, not be surprised to see on the one hand a decrease of 25 per cent. in revenue, owing to the conversion of many of the present hands into apprentices, and an increase in dues of the like or, perhaps, of a higher amount to meet the necessary cost of maintenance. Many other inconsistencies that we need not now point out would arise if the proposal of Mr. Holms were adopted, but we need now only remark that his draft clause furnishes another instance of the absurdities in which the Legislature will land itself by attempting to force or protect labour in any industry. It is a great pity that shipowners are not simply left to their own resources to procure and keep efficient seamen for their ships. The only condition that need attach to them is, that shipowners should be responsible for bringing home all the men he sends out.

NAVAL COURTS IN GERMANY.—The German Government is actively engaged in preparing for the organisation of the new Naval Courts. Under the Bills submitted to the delegates of the sea-coast States, the Naval Courts are to be State Courts, not Imperial Courts, but are to be formed and worked in accordance with the law enacted by the Imperial

Government and Legislature. There will be an appeal from the various local tribunals to a Supreme Naval Court, to be appointed by the Emperor. The Courts will have to investigate all accidents to German ships, and also those to foreign shipping, happening within 15 miles of the German shore. In cases involving loss of life or ship the Courts will be compelled to institute judicial inquiry. Minor accidents will be inquired into, but need not unless an investigation is ordered by the Imperial or State Government. If this Bill becomes law, as it probably will very shortly, the Anglo-German agreement concluded in 1869, under which accidents to German ships in English waters are investigated by English Courts, even if they occur at a distance of more than 15 miles from the English shore, will be changed.

THE ATLANTIC STEAMSHIP TRADE.—The continued and increasing decline in the outward trade between Liverpool and New York, and the lowness of freights for inward cargoes, have at length induced the White Star Company and the Inman Company to enter into mutual arrangements with a view to economy. Each of these companies have until now been running one steamer per week from each side of the Atlantic, but an arrangement has been entered into under which they will despatch their boats on alternate weeks, except in every fifth week, when each will send out a steamer. The effect of this will be to reduce the sailings of the two companies nearly one-half, to lay up half their fleet, and nearly one-half of their *employés* to be thrown out of employment. Other companies are considering similar arrangements.

CAPTAIN HANSEN AND THE TRINITY HOUSE.—Towards the close of last year a very gallant action was performed by Captain Hansen, of the Norwegian ship *Poussin*, who, having been deserted by his crew, brought his waterlogged ship, single-handed, into English waters, where he obtained assistance, and saved the vessel. The case came as a salvage suit last February before the Admiralty Division of the High Court of Judicature, when salvage was awarded. On the case being reported to the Trinity House, the Elder Brethren thought it a fitting opportunity for the public expression of their high approval of conduct equally gallant and meritorious. They have therefore presented Captain Hansen, through the Norwegian Consul, with a valuable telescope, containing a suitable inscription expressive of their appreciation of Captain Hansen's conduct. This graceful acknowledgment of distinguished merit in the commander of a foreign ship by a Corporation identified with the maritime interests of this country, cannot fail to be appreciated, more especially in the country to which Captain Hansen and his vessel belong.

CARRIER PIGEONS.—The Trinity Board are commencing an experiment with a view to ascertaining how far it is possible to utilise carrier pigeons as means of communication between outlying light-ships and the shore. The pigeons intended for service are being bred in a disused lighthouse tower at Harwich, which apparently is well adapted for the purpose, and the attempt is to be made to open up a sort of pigeon post from the several light-ships in the vicinity to Harwich. The Trinity Board are acting under the advice of Mr. W. B. Tegetmeier, F.Z.S., whose knowledge and experience on the subject are well known; and there is not much doubt that if it is possible to make it so, the experiment will be a success. The value of effectually establishing such a means of communication is obvious, considering that light-ships are generally placed to guard dangers which are too often fatal to other vessels. It is, we think, quite likely that the use of such birds in connection with maritime affairs, might be developed with advantage. A good bird might be so trained that, after being away a week or a fortnight, it would, if tossed in the neighbourhood of land, come home in an incredibly short space of time. At any rate, there is plenty of scope for some very interesting experiments, in which, no doubt, many of our readers would be inclined to interest themselves. As a case in point, we may state that Mr. James N. Douglass, the present chief engineer to the Trinity House, was a good deal dependent upon pigeons when he was engaged in building the lighthouse on the Smalls Rock at the entrance of the Bristol Channel. He, with his workmen, was living in a floating barrack, moored near the rock, but eighteen miles from land; and whenever the state of the weather and sea permitted, they landed on the rock, and went on with the work of building the tower. By means of pigeons, however, Mr. Douglass was enabled to communicate with the people at the workyard on shore, to tell the master of the tug, which carried stone, &c., to come out or stop in according as the weather was favourable or otherwise, and to send many little messages of importance to himself or others who were with him on the floating barrack. The tug always brought out a supply of pigeons for Mr. Douglass's use. We hope before long to be able to record the success of the Trinity House experiment, as well as the utilisation of pigeons for other purposes connected with the sea.

THE
NAUTICAL MAGAZINE.

VOLUME XLV.—No. VI.

JUNE, 1876.

ON THE AUTHORITY OF THE MASTER OF A BRITISH SHIP
TO CORRECT THE MARINERS.

THE case of Captain Barnes, of the *Locksley Hall*, has given occasion to a public meeting of shipowners and shipmasters, and other persons interested in British shipping, hardly second in numbers and importance to the great meeting of British shipowners, which assembled in 1847 to oppose the Repeal of the Navigation Laws, which the majority of British shipowners believed at that time to be certain to entail the ruin of the Merchant Shipping interests of Great Britain. The meeting, however, on this occasion, which was held on May 5th in the London Tavern, was not convened to obstruct legislation, but rather to promote it, by reason of the vague uncertainty in which the law of master and mariner is left in the present day as regards the authority of the master of a British ship over his crew, when his vessel is on the high seas; and, in consequence of what the meeting held to be an abuse of the summary jurisdiction, which the magistrates of the ordinary Police Courts in London are empowered to exercise in questions touching the discipline of a ship's crew without any appeal from their decisions being allowed to a Superior Court.

Captain Barnes, according to the police report in the *Times* of April 28, summoned an able seaman, named William Allen, before the stipendiary magistrate of the Thames Police Court, and charged him with refusing to do his duty, and with assaulting the chief officer of the ship. William Allen, on the other hand, brought a counter-charge against the captain of having assaulted him illegally by placing him in

irons. "Allen, it appeared, had been engaged at Sydney as an able seaman at £5 per month, and all seems to have gone on smoothly until March 3rd, when Allen refused to do duty, and the captain placed him in irons. The reason which Allen assigned for his refusal"—we quote the report of the *Times*—"was that he had been abused fore and aft in the ship. All the men were called aft, and denied what he said. On April 9th, Venables, the first mate, went to Allen and told him to turn up his sleeves and wash like a man. He made no answer; and as his sleeves were dripping in the water, the first officer went to turn one of them up. Allen flew at him, scratched his face, and kicked him on the leg with a leg iron. During the time he was under detention, Allen was repeatedly urged to resume his duty, but refused. He was kept in irons off and on until the ship arrived in dock on April 21st." The captain of the *Locksley Hall* appears from this account to have lost no time after his arrival in port in submitting the misconduct of Allen to the cognizance of the stipendiary magistrate of the district, and it was clearly established before the magistrate, that Allen had been guilty of two of the most serious breaches of discipline, which a seaman can well commit on the high seas, namely, he had repeatedly refused to do duty as an able seaman, for which he had signed articles, and he had assaulted the chief officer of the ship without any provocation. For these offences, if William Allen at the time, when he committed them, had been within the jurisdiction of a competent tribunal, the Merchant Shipping Act, 17 & 18 Vict., c. 104, s. 243, has provided the following punishments. After reciting three other grounds of punishment in the case of an offending mariner, the Statute enacts—

"(4.) For wilful disobedience to any lawful command, he shall be liable to imprisonment for any period not exceeding four weeks, with or without hard labour, and also, at the discretion of the Court, to forfeit out of his wages a sum not exceeding two days' pay.

"(5.) For continued wilful disobedience to lawful commands, or continued wilful neglect of duty, he shall be liable to imprisonment for any period not exceeding twelve weeks, with or without hard labour, and also at the discretion of the Court to forfeit for every twenty-four hours' continuance of such disobedience or neglect, either a sum not exceeding six days' pay, or any expenses which have been properly incurred in hiring a substitute.

"(6.) For assaulting any master or mate he shall be liable to imprisonment for any period not exceeding twelve weeks, with or without hard labour."

The magistrate of the Thames Police Court seems to have been satisfied that the charges of wilful neglect of duty, and of an assault upon the chief mate had been proved against Allen, as he thought himself

bound to punish him nominally for both offences. The magistrate, according to the *Times*' report, "said he had taken into consideration what Allen had already suffered. For the refusal of duty he inflicted a nominal punishment of one day's imprisonment, and for the assault another day's imprisonment." We are not disposed to quarrel with the magistrate's decision upon this part of the case, for it was on the side of mercy towards the seaman, but we have misgivings as to the justice of it; and we are unable to discover in the report of the case any grounds for the magistrate's application of the term "suffering" to a state of confinement, which Allen himself appears not to have thought irksome, as he might at any moment have put an end to it by consenting to return to his duty, when repeatedly urged to do so. It does not seem to have occurred to the magistrate that Allen had engaged himself to perform the duties of an able seaman, of whom there is a limited number in every vessel; and that his wilful and persistent refusal to resume duty, whilst it secured to himself a life of contumacious idleness for two months, imposed upon the other able seamen more than their fair share of duty, and that, in their case, the increased duty at the wheel alone would be of itself a serious evil. From our point of view, we think that the justice of the case required some deduction of Allen's pay to have been ordered by the magistrate agreeably to the powers conferred upon him by the Statute. In the case of *Murray v. Moultrie* (6 Carrington and Payne, p. 474), Chief Justice Tindal laid it down, that each separate refusal of a mariner under confinement to return to work was a fresh act of disobedience. The case, however, of the *Locksley Hall* did not terminate here. The magistrate proceeded to consider the countercharge made by William Allen against the captain, and, according to the *Times*' report, expressed himself in these words:—"The powers vested in the captains of merchant ships were very extensive, and ought to be exercised with great caution. Placing a man in irons was an extreme measure—a measure resorted to only when there was danger to any person on board the ship, or to the ship itself." It is probably owing to some misconception of the law on this head, that the magistrate missed his way in dealing with the countercharge against the captain. There cannot be any doubt that it is not unlawful for the master of a British ship on the high seas to place in irons a seaman (*Murray v. Moultrie*, 6 Carrington and Payne, p. 473), and even a passenger (*Boyce v. Bayliffe*, 1 Campbell, p. 57), if his confinement be necessary to the discipline of the crew and the security of the ship. The risk of illegal action on the part of the master is not so much incurred by his putting a seaman into irons at the moment when he is insubordinate, as by keeping him in irons after the immediate necessity of repressing insubordination has passed away, and the magistrate might have been justified in requiring further evidence on this part

of the case, to show the necessity of Allen's confinement being continued. On the contrary, he appears to have refused to allow the captain to refer to the official log of the ship; at least, such was the statement made by the chief officer of the *Locksley Hall* before the meeting at the London Tavern. The magistrate, in fact, seems to have assumed that as the confinement of Allen was admitted by the captain, the illegality of the captain's conduct was indisputable, and his judgment was continued in these words: "That the man had been most illegally and cruelly treated he could not doubt. He was well aware of the importance to a captain of not being subjected to a severe punishment for a breach of discipline; but it was as well that seamen should be aware there was a tribunal on shore, where the misconduct of a captain would meet with equal justice as misconduct on the part of the men." We cannot but think that the magistrate, in using the above words, or words to a like effect, must have been quoting a passage from some reported case, and by way of illustration, which the reporter has misapprehended the magistrate to apply to Captain Barnes's conduct. However that may be, the magistrate is reported to have concluded his judgment in the following somewhat inconsequent manner: "The man Allen had brought this case on through his own misconduct, and was not entitled to anybody's sympathy. The captain, however, had been guilty of illegally imprisoning a man, though not, as it would appear, out of malice; and he should not be doing his duty unless he sentenced the defendant to twenty-one days' imprisonment, without hard labour." Whatever may have been the precise language used by the magistrate, there can be no doubt that the master of the *Locksley Hall*, who had just brought his owner's ship safely into port, after a voyage of about ninety-five days across the Atlantic Ocean, and whose immediate services were greatly needed to the owners whilst the ship was discharging her cargo, was sent off in the criminals' van to prison for twenty-one days as an example of the administration of "equal justice" between master and man. The irony of Fate, as regards the captain, was severe; but a more bitter irony of Fate has attended the magistrate, for the Secretary of State has intervened, and directed Captain Barnes to be released from prison, whilst indignant voices are heard from every branch of the shipping interest, demanding a revision of the law, under which such glaring injustice could be perpetrated.

It is clear from the tone of the meeting which was held at the London Tavern on May 5th, in consequence of a requisition signed by 372 shipowners and shipmasters, 98 underwriters at Lloyd's, and 21 marine insurance offices in London, that the decision of the stipendiary magistrate in Captain Barnes's case has disclosed a state of vagueness and uncertainty in the law as regards the maintenance of

discipline on board of British merchant ships, which is perilous to the interests of the shipowners, as it is calculated to weaken the authority of the master, and to embarrass him unduly in the discharge of the great trust which the law imposes upon him. It has not been hitherto the policy of the Legislature to interfere with the common law of the sea as regards the authority which the master of a merchant ship is entitled to exercise on board his ship on the high seas for the maintenance of discipline, and it may be open to question whether, if the jurisdiction in cases where the master's authority has been disputed were confined as formerly to the Superior Courts of Law, it would be desirable to interfere with the Common Law; but if such cases can be dealt with summarily by police magistrates without a jury, it is absolutely necessary for the legal security of the masters of merchant ships, that they should have some protection afforded them by the written law. It is indispensable that they should have the power of confinement in certain cases; and although the phrase of "putting men into irons" sounds harsh to a landsman's ears, a seaman would probably elect to be so treated in preference to being locked up in a cell below deck; and it must be borne in mind that there is no prison-yard on board ship for offenders to take exercise in. What seems to be wanting in the legal organisation of our Mercantile Marine is, the Statutory recognition of a quasi-judicial character in the shipmaster, and of some rules for his guidance when he acts in that character. The master's judicial character was recognised in the Laws of Oleron, which were received in England and in the ports of Flanders and of Holland. and in the Laws of Wisby, which were received in the ports of the Baltic. It was recognised in the Book of the Consulate of the Sea, which contains the customs of the Mediterranean mariners, and the mariner's duty of strict obedience to the master is recognised in the Ordinance of Peter of Aragon of 1340, which forms a part of the Book of the Consulate of the Sea, and which provides that, in case of wilful disobedience on the part of any mariner, the other mariners ought to arrest him and "put him into irons," and keep him in irons until he can be delivered up to the magistrate of the place to which the ship belongs, who is to hand him over to the Provost of the King, to be dealt with according to Right and Justice, and the disobedient mariner is to receive no wages as long as he is in irons. This Ordinance embodies the Common Law of the Sea, upon the traditions of which, orally handed down from generation to generation of seamen, shipmasters rely as warranting them to confine in irons mariners, who are wilfully disobedient to orders on the high seas.

The case of Captain Munro, of the ship *Sepia*, is another recent case heard by another stipendiary magistrate of the same Police Court. In that case, James Catto, an able seaman, summoned Captain Munro for

assaulting him, by illegally putting him into irons. We follow the *Times*' report of the case. It appeared that on the 3rd March, Catto and the ship's cook had a squabble, and hard words passed between them, when Catto, who was the stronger man, made a blow at the cook, which was returned. "They closed and fell, the complainant being uppermost. He was pulled away by the captain, and the mate and the boatswain placed irons on his hands. This was at a quarter-past nine o'clock in the morning. He was taken to the lazarette, where one of his irons was fastened to a ring-bolt. At dinner-time one of his irons was removed for eight or nine minutes, after which he was again placed in his former position until four o'clock in the evening. He could not work for fourteen days afterwards, in consequence of the irons that were placed on his wrists being too small, and there was a swelling on one of his wrists, when he showed it to the mate on the following day. It was not contended that the complainant had misconducted himself prior to the occurrence in question or afterwards. The police magistrate fined the captain £5 and 21s. costs." Such is the report in the *Times*, and, upon the face of that report, the magistrate's decision may have been unjust towards the captain; but, at all events, it was not cruel. But another view of this case has been presented to the public, which must not be overlooked, and which does not so much concern the conduct of the magistrate, as it affects the fitness of the tribunal. Captain Munro has addressed a letter to the editor of the *Standard*, which appeared in that journal on 9th May. "My case," he writes, "although second in hardship to that of Captain Barnes, involves the same important principle—Have I, as commander of a merchant ship—responsible for the lives and safety of her passengers and crew—the power to check insubordination by putting a man in irons; and if I possess this power, is it to be left to my judgment when to exercise it, or to the judgment of a police magistrate? I have always understood this to be my province, and, in this case, in order to preserve discipline, I assert that I exercised it in a judicious manner, and my officers are willing to corroborate my statement. On my way out to Queensland, with 260 emigrants, this man, Catto, behaved badly, and struck the boatswain, and for which he was punished (a fact which unfortunately escaped my memory when giving evidence at the Thames Police Court), and had I parleyed with a second offence, judging from the character and temper of my crew—and what can a respectable police magistrate know of this?—the result might have been most disastrous. The decisions of the magistrates, both in the case of Captain Barnes and my own, are calculated to increase the difficulty of preserving order, and must do a great injury to our seafaring interests. On the other hand, if such cases were properly tried before a competent tribunal, the tendency would be to elevate the

real British sailor, and weed out a class of men which, I am sorry to say, are now in the majority, and are a disgrace to our merchant service."

We agree with Captain Munro in his opinion—that an ordinary Police Court cannot be expected to deal in a satisfactory manner with questions, which were formerly considered to be properly cognisable by the High Court of Admiralty and by the Superior Courts in Westminster Hall; and such appears to have been the deliberate judgment of the meeting of shipowners and shipmasters at the London Tavern, as a resolution was there carried that a deputation should wait on the First Minister of the Crown, and should request him "to take such measures as he may deem fit, to procure such alterations of the laws as may be necessary to secure and preserve discipline on board British ships on the high seas." "We cannot but feel," said Mr. David MacIver, M.P., in proposing this resolution, "that in this case (Captain Barnes's case) as in other cases, shipmasters have been before an incompetent tribunal."

We have already observed that the legal risk to the captain of a ship is not so much in putting a mariner into confinement for insubordination, as in keeping him for too great a length of time in confinement. In the case already mentioned of *Murray v. Moultrie*, where the seaman was kept in confinement for four months, it was a question of excess. Lord Chief Justice Tindal said in that case:—"By the common law, a similar power of moderate chastisement is given to the captain of a ship, as there is to a parent and a schoolmaster. Lord Tenterden often observed that it was always desirable, and indeed the duty of the captain, to institute an inquiry, and have the result of it entered in the log. It is his duty, because by availing himself of the advice of others he prevents himself from acting solely on his own feelings, which may be excited; and it is his interest, because it furnishes evidence in his favour to be used on the day of trial. And it is matter of regret that a course which is so simple and so useful has not been resorted to in the present case." In accordance with the suggestion of Lord Chief Justice Tindal, every master of a ship is now required by the Merchant Shipping Act (17 and 18 Vict., c. 104) "to make, or cause to be made, in an official log, as distinguished from an ordinary ship's log, an entry of every offence, for which punishment is inflicted on board, and likewise of the punishment inflicted." In the case of the *Agincourt*, which was a private vessel engaged in the East India trade, reported in 1 Haggard's Admiralty Reports, p. 278, Lord Stowell adopts the same view of the captain's authority. "It appears," he says, "that the law gives the same authority to the captain of a merchant ship to chastise his mariners for misbehaviour as a master possesses over his apprentices, meaning that it is inherent in him upon the same grounds of necessity and sound discretion in the one case as in the other, not certainly to be used exactly in the way of an equal

measure of punishment, because the apprentice is generally a youth of comparatively tender years, and whose acts of misbehaviour can hardly produce the same disastrous consequences as may attend the negligence of the mariner—an experienced person, of confirmed strength, capable of sustaining a severer infliction than can properly be applied to a stripling, and whose acts, even of negligence, may draw after them consequences fatal to all the lives and all the property on board a vessel. It is hardly necessary to add that, in all cases which will admit of the delay proper for inquiry, that inquiry should precede the act of punishment, and therefore that the party charged should have the benefit of being heard in his own defence. A punishment inflicted without the allowance of such benefit is in itself a gross violation of justice. There are cases undoubtedly which neither require nor admit of such a deliberate procedure. Such are cases where the criminal facts expose themselves to general notoriety by the public manner in which they are committed, or where the necessity occurs of immediately opposing attempted acts of violence by a prompt reaction of lawful force, as in the disorder of a commencing mutiny. These are cases that speak for themselves and are of unavoidable dispensation.” Lord Stowell goes on to say:—“It may be matter of prudence, but it is not matter of strict obligation, in vessels of this kind (though I understand it to be so in ships of the East India Company) that the captain should communicate with other officers of the vessel.” It should be remarked, that the grievance of which the plaintiff complained in the case of the *Agincourt* was, that he had been cruelly kicked and cuffed by the master, and had been publicly flogged. No like case can well occur again in the British mercantile service, as the punishment of flogging has been discontinued; but the observation of Lord Stowell as to the prudence of the captain communicating with other officers of the vessel, when the case admits of deliberate procedure, deserves attention, as it is suggestive of the way in which legislation should proceed with the object of preserving discipline on board of British ships at the least possible risk of vexatious law-proceedings against the master.

With this object in view, we think it not unreasonable that the Law should recognise something in the nature of a Ship-council on board of every ship. It was an ancient provision of the maritime law of the great seaports of the Mediterranean sea in the middle ages, that a Ship-council should be appointed on board of every ship, whose province it was to adjudicate on all disputes, which might arise on board whilst the vessel was on the high seas. The conditions of navigation, however, were very different at that time from those under which ship's articles are now signed, and no similar Ship-council would be feasible in the present day, nor would it be desirable to resuscitate such an institution. The legal risk of the master of a ship in confining a mariner

or a passenger on board his ship on the high seas is not so great in ordering him into confinement, as in keeping him in confinement. In the case of *Boyce v. Bayliff*, 1 Campbell, p. 57, the complainant was a passenger on board an East India ship, in the year 1805, when two strange sail, supposed to be enemies, hove in sight, and the captain mustered the crew and passengers on deck and assigned to each his station to defend the ship. One of the passengers refused to serve on the poop, to which he had been assigned, and the captain ordered him to be carried and placed in irons on the poop, where he was kept till the next morning, when the strange sail had disappeared. The passenger brought an action for assault and imprisonment against the captain, and Lord Ellenborough expressed his opinion that "a captain had authority to do what was necessary for the safety of those on board the ship. On the approach of an enemy he had a right to assign them all a station, which it was their duty to accept. As the plaintiff had refused the orders given him, perhaps his confinement might be necessary to the discipline of the crew and the security of the vessel, and, if so, would be justifiable in law." Lord Ellenborough, however, when the facts of the case disclosed that the confinement of the passenger on the poop had been continued throughout the night, was clearly of opinion that the confinement was excessive, and summed up for the plaintiff.

We consider it would be highly dangerous to the safety of life and cargo to limit in the slightest degree the absolute authority of the master of a ship to enforce obedience to his orders on the part of the mariner. The mariner's contract is a contract *sui generis*, totally unlike the contract between a workman on land and his employer. It is thus explained in the "Ancient Customs of the Sea," which are collected in the Book of the Consulate of the Sea, ch. cxvii. (162):—"A mariner is bound to perform all the orders of the master of the ship, or of the mate, provided it is not for the service of another vessel; but he is bound to do every service, which belongs to the ship"—(Black Book of the Admiralty, Appendix, Vol. III., p. 226). This is the general law of the sea, not the law of any particular country, but part of that general customary law, of which the Emperor Antonine said, in refusing to tamper with it, "Ego vero mundi Dominus, Lex autem maris." It is, in fact, the common law of the sea, founded on the necessities of navigation. It was the complaint of more than one speaker at the meeting of ship-owners and shipmasters, held at the London Tavern, that the magistrate in the case of the *Locksley Hall* had avowedly dealt with the question between the master of the ship and the mariner who had refused to do his duty, as an ordinary question of breach of contract between an employer and his workman; but the wide difference between the two cases has been well explained by a learned Admiralty Judge of the

United States, who may be fitly cited as being an independent witness from a country in which the liberty of the mariner is more jealously guarded by the Statute Law than in this country :—"It is certainly true," says the learned judge, "that by the common law when a man lets himself to hire, and neglects or refuses to fulfil his engagement, he cannot be compelled to do it by any restraint put upon the freedom of his person. The law gives to the injured party only a remedy by an action for damages, and this is in the ordinary transactions of life considered as an adequate remedy. But the contract for hire for marine service stands on reasons in many respects peculiar to itself. Though considered as a civil contract, principles are applied to it in some respects bearing a strong analogy to those holding in military service, and the service is by the laws of some nations considered partially at least as a military service. Seamen, if not bound by the general law of the sea, are by the positive institutions of several countries to assist at the risk of their lives in defending the ships against pirates, and a refusal to fight is punished criminally. Such is the law of England ('Abbott on Shipping,' 174) and of France ('Ordonnance de la Marine,' l. 11, s. 7, Art. 9). The Consulate of the Sea, ch. 172-178, requires all the seamen to provide themselves with arms to defend the ship, and if they do not, the master may provide them and deduct the price from their wages. The laws of the Hanse Towns, Art. 35, 36, condemn men who refuse to aid in defending the ship against pirates to be whipped as cowards. The present case" (which was a case where the ship's cook, who had deserted and been brought back, and who was confined on board the ship by a chain attached to his leg to prevent him deserting again) "presents an instance in which the remedy for a failure to fulfil the obligations of a contract has little affinity with the ordinary remedies given by the common law. A seaman who abandons the vessel is not considered merely as violating a civil contract; he is branded as a deserter, may be apprehended on a warrant and imprisoned, and forcibly compelled to fulfil his engagement. And this is a principle incorporated into all maritime codes. But what other conduct purely civil can be enforced by such a process? Again, a master may compel obedience to his orders by moderate and reasonable chastisement on the spot of a reluctant or disobedient seaman. But who ever heard in any other contract for hire of labour of subduing obstinacy or quickening intelligence by corporal chastisement, or who ever thought of offering, as a legal justification of battery, that it was a necessary stimulant to the party of a more exact performance of his duty? Though the mode adopted by the master to secure the services of the cook may be revolting to the feelings of those who are in the habit of considering an action at law as the only remedy for a violation of a contract, these feelings will be considerably abated when they con-

sider the difference of the principles applying to contracts for maritime services from those which govern ordinary contracts for the hire of labour, and the peculiar necessity of requiring a very exact compliance with the terms of the contract for the security of property often of great value embarked on an uncertain and treacherous element, and singularly liable to accidents and losses. If a sudden tempest arises, the absence of a part of the crew may occasion the loss of ship and cargo, and the remedy by action would be a mere mockery of justice" (Turner's Case, Ware's Reports, p. 88).

The judge in the above case refused to make an order for the release of the ship's cook from confinement, as being properly under restraint to prevent the renewal of his offence.

Such being the legal view of the mariner's contract, it would clearly be against reason to treat such a contract as an *ordinary civil contract*, inasmuch as the voyage of the ship is a common adventure, on which no prudent passenger or mariner would embark except on the faith of the captain's authority and capacity to maintain an unity of purpose and of action amongst the crew to confront and to overcome the perils of the navigation. The question therefore necessarily arises in such an adventure—what is to be done with a mariner, who wilfully refuses to perform his share of duty, which is assigned to him by the captain? Let us try the question by the test of common sense. Such a mariner must either be let alone, or he must be subject to some privation to induce him to resume his duty. No false philanthropy would probably venture to maintain that he should be allowed to remain idle, for the example would be contagious. If, on the other hand, he is to be subject to some privation, it must be either the privation of his liberty or the privation of his food. The latter may sound to some ears as the milder punishment, yet the consequences of it might be more injurious to the mariner than the consequences of restraint on his personal liberty, whilst its tendency would be to incapacitate him from resuming his duty. Besides, the Law has sanctioned imprisonment as a proper punishment to be inflicted by a Naval Court, convened under the Merchant Shipping Act, 1854, upon any mariner who has been guilty of any wilful disobedience of orders or any wilful neglect of duty. It deserves also to be borne in mind that the conditions, under which a master's authority on board a British ship is now exercised, are very much changed for the advantage of the passengers and the crew. The master is no longer a kind of supercargo, or perhaps the managing owner of the ship, who dare not venture to ascend as high as the crosstrees in a gale of wind, and whose feet are more at home under the mahogany of his cabin-table than on the poop of his ship, but he is now a certificated seaman and navigator of the first class; an expert who has learnt by personal expe-

rience in the several grades through which he has passed, what is the discipline proper and necessary to be maintained on board of a well-ordered merchant ship. He has also the assistance of officers, who have in like manner obtained their certificates of fitness for the duties which they have to discharge. A merchant ship, furnished with a captain and officers corresponding to these conditions has given something like pledges to the law before she has left port, that discipline will be maintained on the high seas with a firm, but not with too harsh a hand. The Merchant Shipping Act, 1854, has also provided for the protection of the mariner, that if he is punished for neglect of duty, a record of the punishment shall be entered in the official log of the ship; and that unless that entry is produced and proved, a Court of Law shall be at liberty to refuse to receive evidence of any offence charged against the mariner on his arrival in port. No provision, however, is made for the protection of the captain himself against vexatious proceedings being instituted against him on the part of a mariner, although the captain has taken care to comply with the requirements of the Merchant Shipping Act, 1854, and he has observed a scale of punishment, when necessary to be inflicted on insubordinate members of the crew, in strict conformity with the spirit of the Statute. Various speakers at the meeting at the London Tavern called for an immediate alteration in the Law. We do not think it necessary that any change should be made in the *principles of the law*, which govern the mutual relations of master and mariner on the high seas; but justice to the master in our opinion requires that some amendment should be made in the present *legal procedure*. We would suggest, however, in the first place, for the further protection of the mariner, that greater formality of proceedings may fitly be observed on board a ship in cases where the confinement of a mariner is continued beyond a given time, and that in such cases the entry in the official log should be signed by the captain and the first and second officers of the ship, who should for such purposes be legally regarded as a Ship-council. As regards the protection due to the master, when there is evidence of this kind forthcoming to show that the punishment inflicted on the mariner has been a subject of deliberate procedure, we are strongly of opinion that the question of the rightful exercise of the master's authority should be withdrawn from the jurisdiction of the police magistrate. A precedent for such a limitation of the summary jurisdiction of the magistrate, where a question of legal right is to be considered, is furnished by the Statute Law regulating the proceedings in matters of church-rate before justices of the peace. By 58 G. III., ch. 127, a summary jurisdiction has been given to any two justices of the peace (and a stipendiary magistrate is in law equivalent to any two justices of the peace) to enforce a church-rate against a

recusant parishioner by an order of payment, and, upon refusal or neglect of the party to comply with such order, to levy the money by distress and sale, provided always, that if the legality of the rate or the liability of the party be disputed, the justices are to forbear to give judgment thereon, and the party proceeding for the rate is then at liberty to proceed to recover his demand according to due course of law, as heretofore used and accustomed. We think the mischief in the present state of the law, as disclosed by the case of the *Locksley Hall*, may be remedied by an analogous amendment in the present legal procedure before a magistrate. In all cases where the punishment of a mariner on board a ship has been an act of deliberate procedure, after the manner above mentioned, and an entry has been made in the official log of the ship, showing that the punishment has been inflicted or continued with the concurrence of a Ship-council, justice to the master of the ship, as well as the best interests of the Mercantile Marine, require in our opinion that, in any proceedings instituted before the magistrate by a mariner against a master of a ship, if the master justifies his conduct upon the production and proof of such an entry in the official log, the magistrate should forbear to give judgment in the case, and then the complainant should be left to seek his remedy in one of the superior courts by an action for damages as heretofore. Before such a tribunal the captain would have the protection either of nautical assessors, or of a jury, under the direction of a judge. This very simple modification of the present legal procedure would be reasonable in itself. It would be in accordance with the spirit of English justice. It is what the captain of an English merchant ship is entitled to demand, if he is to be responsible for the due maintenance of order and discipline as heretofore on board his ship on the high seas.

TRAVERS TWISS.

CHINESE PORTS.—A Shanghai paper states that three new ports in China are to be thrown open to foreign trade—to wit, Ichang, Wheu, and Wenchow. Ichang is situated towards the western portion of Hupeh, and may almost be said to lie in the very centre of the Empire. Wenchow is in the Province of Chekiang, half-way between Ningpo and Foochow. It is on the borders of Fokien, and is a seaport town. Wheu is a district city in the Prefecture of T'ai-p'ing, in the Province of Nganhui, and lies a few miles up the Yangtse, beyond Nankin. It is the centre of a somewhat extensive trade, and, like Shanghai, and for the same reason, boasts a To-t'al for the supervision of its commerce.

BRITISH SEAMEN OF THE PRESENT DAY.



WE have, as our readers are aware, always maintained that the way to prevent loss of life at sea, is to begin with the seaman. Let him be but once made independent of the crimp, and let reasonable and proper steps be taken for settlement of his wages, and let the hands of the master be strengthened in dealing with refractory and incompetent members of the crew, and there will be a chance of a ship making her voyage in safety. While we have always urged the above views as regards seamen, we have repeatedly stated that the agitation set on foot against ships would not only do no good, would not only not save a single life, but would hamper honest trade, and incite the seaman to commit serious breaches of discipline.

We wish we could now write that our forebodings were altogether wrong, or, at the best, were unnecessarily gloomy; but the transfer of British ships to Foreign flags, the daily and growing preference given to foreign ships by shippers, the continued repeated and serious acts of desertion, mutinous conduct, murderous assaults, and actual murders, prove that our views have been right all along.

British shipowners are losing the carrying trade (although their ships are better than foreign ships), because of the liabilities to detention by complaints of dishonest seamen, and the unsafety caused by incompetent and mutinous seamen, which place the British ship at a disadvantage as compared with all other ships. Life continues to be lost in missing ships that are classed, in excess of those that are not classed, and yet hitherto the remedy relied on by the humanitarian agitation, and the press, to prevent loss of life, is to drive ships into classification, and to uphold the seaman as against his employer by weakening the hands of the master.

It was perhaps necessary that the clamour as to alleged unseaworthy ships should be met before the real remedy for loss of life at sea could be grappled with; but now that the mist has been cleared away, it is possible that the real substantial evil, the unseaworthiness of so-called seamen, who send seaworthy ships to the bottom, should be approached.

With unfeigned satisfaction, every one connected with ships hailed the announcement of the President of the Board of Trade that legislation for seamen would form an important feature in the work of the next Session. Our only regret, which though vain, we must express, is that it is impossible this Session, for we now know that our ships have to face another winter with inefficient crews, the authority of the masters and officers weakened, and a spirit of ferocity on the part of the

dangerous characters who find their way into the forecastles of ships, fostered and encouraged, and only waiting a reasonable demand for their services to break forth at any moment into acts of insubordination, violence and murder.

We have to record once more that the hon. member for Plymouth has been the means of obtaining the withdrawal of the clause which proposed to abolish advance notes; but we have to record, with no less satisfaction, that the hon. member's views on the subject are now, as ever, regarded with favour by a small majority of shipowners; and the day will arrive when, by means of a mouth-piece more in accord with the views of the great body of shipowners, the House of Commons may be fully informed of the dislike with which, even amongst the seamen themselves, the advance note is regarded. We do not say that it may not be impossible for some shipowners to get crews without an advance of wages; indeed, it may even be possible that with an advance of wages they may only be able to obtain foreigners; still, we say if an advance of wages be necessary in any case, the seaman ought to have the advance down in money to the full amount, afterwards deducted from his wages, and ought not to be put off with a piece of paper, which is often of less value to him by 50 per cent. than the amount he is credited with, and is of more value by 50 per cent. to the crimp, who finds the man for the master or owner. It may also be impossible for some shipowners to carry on their business without employing a person to look up their crews when the ship is about to sail; but even if this be so, it will be much fairer to the men as a class, if the owners in these few cases were to pay a proper person to do this, rather than to employ crimps, who remunerate themselves by the proceeds of the advance note entirely at the cost and to the detriment of the seaman.

Since writing on the subject last, we have heard of many interesting cases which would have been impossible, but for the advance-note system, and we give the two following for the information of such of our readers as are not technical.

In a ship leaving port, several seamen having obtained advance notes as usual, did not join, and substitutes therefore had to be shipped at the last moment. These substitutes afford a fine investment for the crimp. One of the substitutes in this case, when on board, was walking about staring round him, doing nothing, and the captain said to him, "Now my man, give a hand; haul in the slack." The man looked astonished, evidently not knowing to whom he was to give his hand, or where he was to find any "slack," or how to haul it in. The captain having repeated his orders, was only met by a vacant stare, and eventually asked the man if he was drunk. But he was not. It turned out that he was a tailor, on board of a ship for the first time in his life. Having

wished to get away from his wife, he made himself some clothes, went to a crimp, and gave the crimp his advance note for getting him a ship.

In another case, a ship had just left her moorings in the Mersey, and was being towed down the river, when the captain, having to go into his cabin, found one of the crew there. "Hallo, my man," said the captain "what do you want here?" "Why, I've only come to put my clothes-bag into my bed-room," was the man's answer. "Your bed-room?" said the captain; "your berth is forward, go forward." The man replied in effect that he should be glad to do so, but he "did not know where forward was." On being questioned, it turned out that this man was entered as an A.B. substitute, had received his advance note, and had got a kit from a crimp.

The Liverpool crimps hang about the outside of the casual wards and tramps' lodging-houses, and in a morning often invest in a casual or a tramp; and this particular A.B. had just walked from Birmingham, had never seen a ship in his life, and was picked up by the crimp and asked if he wanted a job, to which he replied in the affirmative. He was provided with a blue jacket and old discharge, and a canvas bag with something in it, for which service the crimp received the advance note, and put his A.B. on board. The canvas bag contained his kit he had carefully deposited in the captain's cabin, for this A.B. was careful of his own property, and when it was opened it was found to contain the attire the crimp had provided for him for a winter voyage, which consisted of one large and very ample, but very holey muslin window curtain, and some straw. It is said that the advance-note system, and not a cash advance, is necessary to enable "some men" to go to sea. In this view we think all our readers will concur; but they will very naturally ask themselves whether it would not be better for everybody if the advance note could be made to have a directly opposite tendency, so as to ensure that "some men" should remain ashore.

We do not wish to dilate on this subject as yet; but we trust that local committees of shipowners, who have already done so much good, will recommence their efforts, and frame and pass resolutions which will be of use to the Government next Session when dealing with unseaworthy seamen. The shipowners must approach the subject in a liberal spirit. They must be prepared to afford berths for decent boys apart from the filth and moral foulness of the fore-castle when manned by seamen of the class who want advance notes, and they must not indulge in impossible schemes for getting labour under its fair market value. They must be ready to agree to a reasonable method of settling wages, and then insist on strengthening their own position and that of their officers in all matters of discipline on board ship.

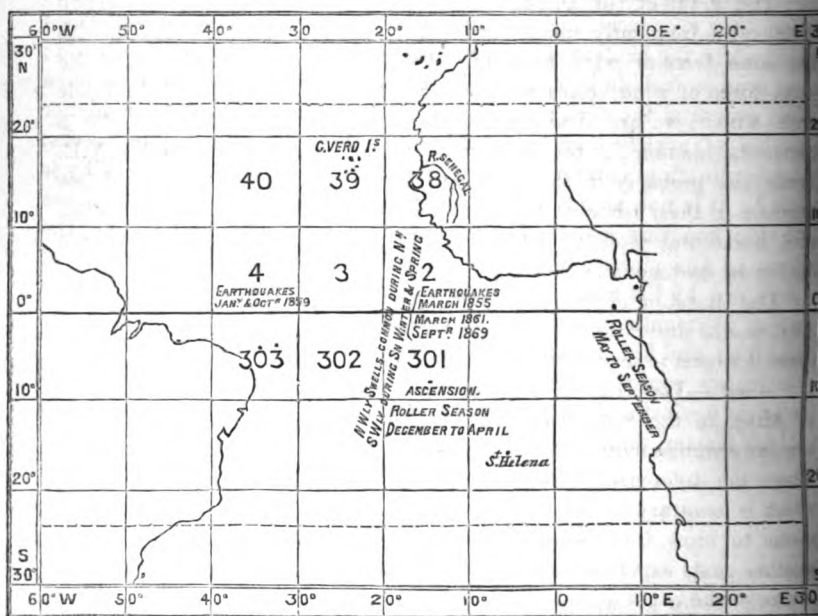
An old proposition that no man should be rated an A.B. who has not been at sea for four years, will doubtless receive reconsideration. It raises many difficulties, and if adopted, would be immediately followed with an increase of wages ; but, nevertheless, it must be discussed. If a ship is to have a load-line marked on her to show her competency, and a shipowner is to be civilly and criminally liable to the seaman for the unsafety of a ship, it is difficult to see why men calling themselves A.B. should not be held civilly and criminally liable for their gross frauds. The best of sailors, like the best of shipowners, would wish it, whilst the worst of sailors—those who go to sea in the expectation that they will be paid whilst others do their work—will alone object to it.

Our merchant ships are better than they ever were, and many of the unclassed are the best in the world ; our merchant officers are better than they ever were, and amongst them may be found the best-informed navigators, the kindest of men, and the best disciplinarians in the world ; our seamen include now, as they ever have included, the best of seamen that ever trod the deck ; and our apprentices are taken from a higher station of society than ever, and yet we hear day after day of wrecks, insubordination, outrages, mutiny, and murder on board ship. Why is this ? It is not, as Mr. Plimsoll and his following urge, in consequence of ship-knackers ashore, but it is because the residuum of society, the scum of the streets, the refuse of workhouses, and the disgorging of gaols are by the means of the crimp, and the advance-note system, to which Plymouth pins her faith, sent to sea to take charge of property and life ; and because an agitation, founded on ignorance and fanned by the cheap sentiment of Derby and Sheffield, has set up the disorderly element against authority, and has, at the same time, crippled the hands of the master, until mob-law is supreme.

WEATHER IN THE TROPICS.

IN August of last year Captain Toynbee, the Marine Superintendent of the Meteorological Office, read a paper at the meeting of the British Association at Bristol, on the physical geography of that part of the Atlantic which lies between 20° N. and 10° S. lat., and extends from 10° to 40° W. long., with twelve charts graphically delineating the meteorological and other data for each month. This paper, we are glad to say, is now published by the authority of the Meteorological Committee, and can be obtained from Mr. J. D. Potter, of the Poultry ; and of Mr. E. Stanford, of Charing Cross.

It will be remembered by many of our readers that in 1874 the Meteorological Office published a series of charts, with descriptive letter-press, giving meteorological data for the 10° Square extending from the equator to 10° N. lat., and from 20° to 30° W. long., the information being compiled from numerous observations made by merchant captains, under the guidance of the Meteorological Office. The information then published has, we know, proved of the greatest value and interest to many master mariners, and the department has done wisely in extending the work by now publishing the data of the eight 10° Squares which surround Square 3, and which are shown in the accompanying diagram, abridged from that published with Captain Toynbee's paper. The large



ocean area comprised in the Squares treated of, is navigated monthly by thousands of vessels, and the importance of the results obtained cannot therefore be over-estimated. Captain Toynbee has done his work carefully and well; and doubtless he well knows that it is only by the persevering accretion of such valuable data as he has gathered together that our present doubtfulness in regard to meteorological phenomena is likely to be dispelled, and the sure knowledge of invariable law substituted for it.

We take the liberty of extracting the summary of the twelve months' data for the benefit of our readers:—

"Having gone through the various months in order, it may be well to say a few words on the general results.

Pressure.—In the first place, the highest barometric pressure to the northward of the Equator is always in the north-western corner of the district; whilst that to the southward of the Equator is nearly always in its south-eastern corner. This is probably owing to the position of the district in relation to the areas of high pressure which exist at the polar verges of the Trades.

"The area of lowest pressure is generally near Africa, but in October it trends quite across the district, whilst in November and December it is on its western side.

"The gradient (or amount of barometer difference over a certain distance) is frequently steeper in the N.E. than in the S.E. Trade, with the same force of wind blowing. This difference of gradient with the same force of wind seems to show that in the part of the S.E. Trade with which we are dealing the demand is mainly supplied by a horizontal motion in the air, whilst in the northern part of the N.E. Trade (as probably in the N.W. winds which follow the areas of low pressure in these islands) there may be a downward rush of air together with horizontal motion. Sometimes the S.E. Trade seems to overrun the lowest barometer.

"The direction of the wind seems generally to follow Buys Ballot's laws, and to draw towards the lowest pressure in the Doldrum; but at times it seems to depart from this law.

Wind.—The N.E. Trade sometimes seems to draw round the coast of Africa in the same way that water does round a rock, whilst the sea has a similar motion. The Trade gets weakest in that part of the sea where the difference of temperature of both air and sea is greatest, which is contrary to the theory of some meteorologists. Sometimes it seems to blow from hot towards cooler air. The remarkable clear-weather gusts experienced in Square 40 have been remarked upon in the course of the paper as probably downward rushes of air.

"The 'Remarks on Wind' show that both the N.E. and S.E. Trades are often more easterly in direction and weaker in force during the night than during the day.

"Attention has been called to the fact that in December (the commencement of the Hamattan season) the N.E. Trade is diverted into an east wind on the western side of the Cape Verd Islands, whilst to the eastward of them it blows from N.N.E. It has also been shown that during the southern winter the wind and weather near Cape St. Roque are much more unsettled than they are in parts of the sea in the same latitude, but further east.

"It should be clearly understood that whilst the diagrams only show

the wind from that point of the compass which has the largest number of observations, a great variety of other winds blow in those parts where the two Trades meet, especially in the atmospherical eddy which curves round the south-western part of North Africa—into it the northern verge of the S.E. Trade is drawn as a light south-westerly wind, where it meets the southern verge of the N.E. Trade as a N.W. wind, and the result of their meeting is the greatest confusion of light airs, calms, squalls, rain, thunder, and lightning of the most awful kind, together with water-spouts, &c., &c. All this will be shown by the charts and remarks from logs about to be published by the Meteorological Office.

“The diagrams also show that in the part of the sea where some of the West India hurricanes originate, fresh north-easterly and south-westerly winds are in close contact during the hurricane season, and that the route which they take is to the southward of a permanent area of high pressure.

“They also show that a southerly wind is retreating before the advancing N.E. Trade during the months in which West India hurricanes prevail.

“This origin of hurricanes between opposing winds agrees with the researches of Meldrum in the Mauritius and Willson in the Bay of Bengal.

“*Temperature and Currents.*—From January to June inclusive the coldest air and sea are in the north-eastern corner of the district; this low temperature seems to be related to the cold current of water which runs to the southward along northern Africa, the current being probably the result of the large amount of westerly wind in the North Atlantic which extends to a comparatively low latitude during our winter and spring, and heaps the sea against northern Africa, whence it runs to the southward. The N.E. Trade, which is very northerly on the coast, and extends far to the southward, helping the drift in that direction.

“In July and August there is a great increase in the temperature of both air and sea in the northern part of the district, and the easterly current arrows show that the current tends to the north-eastward instead of to the south-eastward near Africa. This is the season when westerly gales are rare in the north, so that the heaping of water against northern Africa would not be likely to exist; and the current in the northern part of the district would be chiefly due to the south-westerly and westerly drift of the N.E. Trade, which extends very far north at this season, tending to draw water away from Africa, and causing the back drift to run more to the N.E. At the same time, it must be remembered that this is the depth of the southern winter, when the westerly gales are very strong in the south, driving water against South Africa which runs to the northward, and is helped along by the S.E. Trade which extends to

nearly 10° N. at this season. On p. 14 of his Report for 1873, Capt. Nares, of H.M.S. *Challenger*, says, 'Our observations indicate that the broad and comparatively sluggish South Atlantic drift current running to the eastward before the continuous westerly winds, accumulates its water against the West Coast of Africa, raising the level of the sea sufficiently to prevent the Agulhas current from continuing its course.' It is reasonable to suppose that this state of thing is more active during the southern winter, when the westerly gales are stronger and extend further north, causing the increased speed of the equatorial current. As this cold water runs to the northward, the peculiar easterly and westerly trend of the coast of Africa in the Gulf of Guinea fends it off, and diverts it to the westward (See the Current Chart in the Admiralty Pilot Charts), so that the coldest water in the district is found close to the Equator in August, and the isotherms are looped to the westward from May to September, following the course of the current. This strong westerly current near the Equator, together with the influence of the prevailing south-easterly wind, seem to have the effect of drawing water out of the Gulf of Guinea, which is replaced by a strong easterly back-drift to the northward of 4° N. This style of back-drift is commonly seen near points in the banks of rapid rivers, where a cushion of comparatively still water lies between the rapid stream and the bank, with a counter drift between the bank and the still water. A well-known case of the kind exists near Fort Point, Calcutta.

"It therefore seems probable that the larger amount of easterly current which exists in our district during the northern summer, is the effect of the causes just alluded to, viz., the absence of water heaped against northern Africa by westerly gales, and the deficiency of water on that coast caused by the westerly drift of the N.E. Trade, these together with the northerly extension of the S.E. Trade, and the strong westerly current near the Equator, would tend to draw water out of the Gulf of Guinea, and cause a back-drift to the north-eastward and into the Gulf. The Guinea current, as well as the northerly set along the coast of South Africa, and indeed the Agulhas current are as it were repeated near America, with variations depending upon different circumstances; see the Admiralty Wind and Current Charts.

"To return to our subject; in October the air and water become decidedly cooler in the northern part of the district, and the coldest spot of that part is again found in its north-eastern corner near the coast, where it continues during the winter and spring months; whereas it had been further west in July, August, and September. At the same time the current near the African coast sets very decidedly to the southward in October and November, so that it may well be supposed that the change in the position of the lowest temperature is partially due to the

current near the west coast of North Africa, which our diagrams show to be chiefly southerly from October to June.

“ Nearly all the observations of sea-temperature with which we have had to deal were taken at the surface.

“ Some interesting facts might be brought to light if a series of temperatures were taken, from the surface downwards, at depths differing but a few fathoms, in that part of the sea near the S.W. coast of N. Africa where there is a difference in the surface temperature of 8° Fahrenheit for 4° of latitude during our winter and spring months.

“ It seems probable that in this part of the sea, the cold southerly current which comes down the coast of Africa passes under the surface drift running into the Gulf of Guinea. Unfortunately, both H.M.S. *Challenger* and the German ship *Gazelle* sounded in our district in August, which was the height of the southern winter, when the coldest surface water lies near the Equator. The *Gazelle* seems to have found a ridge at the bottom near the position of our coldest surface water in August, and Captain Baron von Schleinitz seems to have imputed the cause of the colder water at about 600 fathoms to the ridge at the bottom; of course such a ridge may have such an influence. We do not, however, find that the cold surface water is there in the early or later months of the year; and should like to know whether the temperature of the lower water is permanent. Perhaps H.M.S. *Challenger* may throw some light on this subject on her way home, as her time will probably suit for soundings in our spring, instead of in August.

“ Captain von Schleinitz seems to impute the Guinea current to difference of specific gravity only, which difference is clearly shown by the table of specific gravities following our December remarks. Although difference of specific gravity, together with the amount of rain, must have some effect, it does not seem probable that they cause the easterly current, but that the Trade winds by drawing water off Africa, and the configuration of the land, have more to do with it. If difference of specific gravity were the chief cause, one would expect the water to flow north and south towards those parts of the sea where the specific gravity is greater and there is no rain, instead of into the Gulf of Guinea where rain is falling in abundance, and rivers are pouring the drainage of the rainy season into the sea.

“ Altogether these researches seem to show that our knowledge of the subject will not be complete until serial temperatures have been taken at various seasons. For besides the observations of the *Gazelle* just quoted, we learn that the *Challenger* found a temperature of $61^{\circ}5$ within 60 fathoms of the surface at the Equator in August; we are inclined to ask, was it there in April? In August we have known the surface temperature at the Equator to be below 70° , whilst in April it is 81° to 82° .

*“ Swells of the Sea and Rollers on Ascension, St. Helena, and the West Coast of Africa.—*Throughout this paper it will be seen that there are remarks upon swells of the sea which were not caused by the prevailing wind of the neighbourhood. For instance, during the northern winter and spring months north-westerly swells abound; they are sometimes long and heavy, and extend to the most southern limit of the district.

“Again, during the southern winter and spring months, southerly and south-westerly swells abound, extending at times to the most northern limit of the district; they are frequently very heavy and long.

“In Findlay’s ‘South Atlantic Ocean’ we find that the season for rollers on the Islands of Ascension and St. Helena is from December to April (the northern winter and spring), when north-westerly swells abound from 20° N. to 10° S., and when north-westerly gales are very common to the northward of the N.E. Trade, on a bearing N.W. from those islands. The same work shows that rollers (or Calima) are experienced on the west coast of Africa between 3° and 15° S. from May to September (the southern winter and spring), when south-westerly swells abound throughout the district, and when south-westerly gales are very common to the southward of the S.E. Trade on a bearing S.W. from this coast.

“In a record of rollers kept by Lieut. Rokeby, R.M., during his stay at Ascension, it is shown that they were generally north-westerly from December to April, and south-westerly from May to September; of course those from the south-westward would not be so much felt as those from the north-westward at the ports of Ascension and St. Helena which are on the north-western sides of the islands, but they come with full force on the west coast of Africa, where surf boats have to be used during their season. The natural conclusion is that the rollers, which may sometimes wreck ships at Ascension and St. Helena, are caused by the winter gales of the north-western part of the North Atlantic; whilst the rollers on the west coast of Africa are caused by the winter gales of the south-western part of the South Atlantic.*

“The south-westerly swells also cross the Equator, and cause very high seas during the northern summer months when the S.W. monsoon prevails near the west coast of Africa. Navigators of these parts have frequently remarked on the height of these seas in comparison with the force of the monsoon which was supposed to have caused them. Now

* Since the paper was published, Captain Toynbee has compared the monthly percentage of north-westerly gales in the part of the North Atlantic which lies to the north-westward of Ascension and St. Helena, taken from Maury’s Storm Chart, with the monthly percentage of rollers at St. Helena during twenty years, and finds a remarkable agreement in the curves representing them.

it is shown that they are partly the fruits of the winter gales of high latitudes in the southern hemisphere.

“*Colour of the Sea.*—The sea has generally appeared green when the surface water was exceptionally cold, with much mist and dew prevailing.

“*Clouds.*—Records of upper clouds in relation to the direction of the wind, show that upper clouds from S.E. are very common over the southern verge of the N.E. Trade, and upper clouds from N.E. over the northern verge of the S.E. Trade. That upper clouds from N.E. prevail over the African S.W. monsoon, and that clouds from S.E., and a gloomy appearance in that direction often prevail in this monsoon when the wind continues steady from S.S.W.

“In Square 40, during the months of March and April, upper clouds from the north-westward are more common than those from any other quarter!

“*Weather.*—The weather has been found to be most unsettled off the S.W. coast of North Africa, in that wedge-shaped part of the sea which lies between the two Trades. During the southern winter the weather near the coast of South America is much more unsettled than it is in the same latitude, but further to the eastward.

“*Land Birds and Insects.*—Land birds and insects have been found at very great distances from the land, having been drifted into the doldrum by the N.E. Trade.

“*Various.*—Remarks on red dust seem to prove that it is from Africa. Earthquakes have been experienced by various ships on the 11th March, 1855; 25th January, 1859; 19th October, 1859; 26th March, 1861; and 6th September, 1869. In each case the ship trembled as if dragging her anchor in a tide-way, or drifting over a coral reef: in some cases a sound like distant thunder was heard. That on the 11th March, 1855, was followed by another on the 12th.

“Those in 1855, 1861, and 1869 were experienced in nearly the same place; the mean of the three positions being $1^{\circ} 4' \text{ S. } 20^{\circ} 0' \text{ W.}$, which seems to be near the spot where the German ship *Gazelle* found a ridge at the bottom of the sea. Those in January and October, 1859, were experienced near St. Paul's Rocks, in about $0^{\circ} 30' \text{ N. and } 29^{\circ} 40' \text{ W.}$

“*Passages Across the Equator.*—The result of this work on nine squares confirms the opinions already expressed in the work on Square 3 as to the best routes for crossing the Equator in each month. It adds force to the opinion that ships bound to the southward should not make a westerly crossing from May to September inclusive, and, although by chance fast sailing ships have done fairly after crossing in 80° W. , or even to the westward of that meridian, others have been much detained,

and it is not advisable to cross to the westward of 25° W. if possible to avoid it.

"In conclusion, I venture to hope that if the late Admiral Fitz-Roy could have seen the results which we have been able to deduce from data chiefly collected by him, he would consider that the large amount of time and talent which he devoted to the subject was not thrown away.

"The late Captain Maury knew that we were working at this district; in fact, he had received a copy of the one-degree-square chart which we constructed of Square 8, on which he wrote as follows:—'It is a most valuable contribution to our knowledge touching the physics of sea and air. It is of practical use to navigators also, and I thank you heartily for it.' Had he lived to see these graphic pictures of his wedge-shaped doldrum, to which he devoted so much attention, I feel sure that he would have derived very great pleasure from them.

"In January last, Professor Mohn, the Director of the Royal Norwegian Meteorological Institute at Christiania, wrote to the Director of the Meteorological Office as follows:—'Square 8 is an excellent publication. Happily I got it just as I wanted data for some theoretical calculations. I have now converted the mean wind force of Beaufort's scale into metres per second from your table, and computed by Lambert's formula, the resultant direction and mean velocity for each of the twenty-five 2° squares for August.

"'What a beautiful system comes out! More beautiful than the prevailing winds on the right-hand corner of the chart. There is a perfectly regular curving of the wind from the Equator to 10° N., and the path of the wind is almost the same in all longitudes.'

"He then goes on to mention several calculations carried out by Professor Guldberg and himself, and ends by saying, 'We sincerely hope to find something useful, and if so, your publication of Square 8 has been our best means of carrying out our ideas.'

"In February he wrote again:—'Square 8 occupies me still very much. It is exceedingly interesting to see how in May the calm belt of the meeting of the Trades, the maximum of vapour tension, the amount of cloud and nimbus, the minimum of wind force, &c., do not coincide with the minimum of pressure. The situation is quite like that in our European atmospheric whirls, where the warmest and wettest air, and the most cloud and rain are lying, as a rule, on one side of the barometrical minimum. Therefore this minimum is transported, and this also is the case with the lowest pressure in Square 8 during May; it is travelling northwards towards the region of the meeting of the Trades, &c.

"'Your publication of Square 8 will correct many of our traditional

ideas of the equatorial calms and doldrums. I shall be most happy to take my share in this work.'

"These opinions are quoted because they show that our work has supplied useful data for the theoretical meteorologist, who will, it is hoped, gain a proportionally increased advantage from the additional eight squares which are about to be published.

"To the practical navigator the charts and diagrams are pictures of the experience of those who have gone before him, which is forcibly illustrated by the fact that a captain from Glasgow lately called to purchase six copies of the lecture on Square 3 for the use of his brother captains.

"It is believed that the object of the committee of the Royal Society, of the director, and of all concerned in the working of the Meteorological Office, is to produce results which shall be of use to the country; and I shall certainly be most fully rewarded if this paper, and the work to which it alludes, help forward such results."

INDIAN MARINE SURVEYS.

FROM an abstract of the reports of the survey and of other geographical operations in India, compiled by Mr. Clements Markham, we learn that surveys of portions of the coasts of British India have been commenced, and these may be considered as the first fruits of a newly-organised department, which, under the direction of Commander Taylor, is intended to provide for the long-neglected wants of the mercantile fleets frequenting Indian ports. Previous, however, to the commencement of operations in India, Commander Taylor visited England for the purpose of conferring with the hydrographer at the Admiralty, more particularly respecting the selection of suitable officers of the Royal Navy as surveyors, and six were nominated for this service. There were, besides, important duties connected with the preparation of charts and the projection thereon of the land surveys unprovided for, which duties will be discharged by Mr. C. Carrington, of the Hydrographic Office. The Admiralty likewise placed at the disposal of Captain Taylor all those original charts and records in their custody which were the property of the Indian Government, and that officer selected those which he considered requisite to take back to India. These originals, together with a goodly number of others that were found at Bombay, doomed to destruction because frayed,

insect-eaten, and dust-stained, but fortunately rescued just in time, are now safely deposited in presses at Calcutta, and a catalogue of them has been printed.

The catalogue of all the original and other documents thus deposited has been compiled by Mr. Carrington. It comprises lists of the general and physical charts of India, and the coasts to the west, as well as of each section of the coasts of India from Karachi to Tenasserim, and of the Andaman Islands, Ceylon, the Eastern Archipelago, and China.

Captain Taylor has also prepared a useful review of all the Admiralty charts of British Indian coasts, showing in what respects they are incomplete and untrustworthy, and what surveys are required to render them adequate guides for navigation. He admits, however, that the Admiralty charts are the best obtainable, and suggests that some of the wrecks and accidents are due to the fact that most merchant ships obtain for their use inferior copies, and not corrected up to date. Though the working season had almost passed away before the surveys had all reached India, yet a small amount of work has been done. The first chart compiled under the orders of the new Marine Survey Department has been received in England, and has been put into the engraver's hands. It is the chart of the West Coast of India from Sunmigan Bay, north of Karachi, to Pigeon Island, in latitude 14° S. It has been compiled by Mr. Carrington, from the surveys taken from 1835 to 1862. It is on the scale of three inches to a degree of longitude, and the price will be two rupees. Captain Taylor proposes to issue three more charts uniform with the above, to embrace the whole of British India.

The number of wrecks and casualties reported in Her Majesty's Indian possessions, including Ceylon, during the year 1874, amounted to 40 and 29 respectively. The total number of lives lost was 85, and the total tonnage of vessels wrecked was 16,656. The officiating deputy Master-Attendant remarks, that the majority of the vessels totally wrecked were native-built native vessels, and that hundreds of these vessels are annually constructed in British India without survey, or any competent authority to class or inspect them during the course of their construction. They are, as a rule, built of the cheapest and commonest materials, and barely nailed together. The native owners are exceedingly parsimonious, and pick up scraps of gear and fittings anywhere. The same officer is of opinion that steps should be taken to compel the owners to have them built under certain express conditions, and fitted out properly.

In addition to the surveys above referred to, we must not omit to mention the careful survey of Bombay Harbour now being carried out by Captain Palmer, R.N., of the Indian Government ironclad *Magdala*, a work which we may be sure will, when completed, be of the greatest value to Indian navigators.

INSTITUTION OF NAVAL ARCHITECTS.

THE following is a condensed account of the substance of the papers, &c., read at the meeting of the above Institution, on the 6th April, which want of space prevented our publishing last month. In our next number we shall briefly notice the meetings on the 7th and 8th of April.

Annual Report.—The financial statement is satisfactory, there being only £188 of a balance in hand to carry forward to next Report. As the subscriptions of scientific societies are for current expenditure only, the smallness of the balance is, we think, much to be approved of. The Council, last year, drew attention to the fact that the classes of the Royal Naval College at Greenwich, of which the School of Naval Architecture and Marine Engineering forms a part, are open to private students, as well as to those from the Royal Navy and the Royal Dockyards; they are sorry to find, however, that out of the nine private students at present at Greenwich, only four are English, the rest being foreigners. The Council have resolved to co-operate with the Lords of the Committee of Council on Education, on behalf of the Loan Exhibition of Scientific Apparatus at South Kensington, in the following matters, viz.—(1.) In making a collection of models, apparatus, and drawings, illustrating the history of naval architecture and marine engineering. (2.) In holding a reception of distinguished foreigners interested in naval science. (3.) In attending conferences at Kensington; and (4) In placing a series of Transactions on the table of the Exhibition. The Franklin Institute, Philadelphia, offers the free use of its library and reading-room to all members of the Institution who may visit Philadelphia during the Centennial Exhibition.

The Grand Duke Constantine was elected an honorary member. Lord Hampton occupied the chair.

The President, in his address, alluded to the satisfactory state of the Institution, evidenced by the growing desire on the part of gentlemen of various professions, in different countries, to become members, and by the large number of very able papers to be read.

“On Ships of War.” By N. Barnaby, Esq., V.P.—Our present position:—There is a vague idea that the administration should have such foresight as to avoid taking a single step out of the straight road into the position we shall occupy ten or twenty years hence. But this expectation on the part of the public does not take due account of the great change in conditions introduced by new inventors. Take, for example, the invention of the screw-propeller, and of incendiary and

explosive shells. The introduction of the screw-propeller into the Navy in 1844 made a magnificent Navy obsolete; the realisation of the terrible effects of shell-fire in 1854 again rendered our grand screw line-of-battle ships and frigates things of the past. I grant that we are bound to take care not to go on so obstinately and so fast in any road as to neglect the signs and warnings that are given us. It is my duty, for example, to detect at once the appearance of a new peril for the ships, or a new source of power for them. I should not be fit for my post if I allowed the history of the past, or the contentions and cares of the present, to draw my eyes away from the threatenings and the promises of the future. Our national position demands that we should immediately appropriate new forces, and our public spirit and wealth always make it possible to do so. The circumstances and conditions of naval warfare stand at present as follows:—(1.) Looking at the relative distances within which the gun, the torpedo, and the ram are operative, and the risks of failure in striking with them, the gun occupies the first place, the ram the last, as instruments of naval warfare. (2.) Ships built wholly for torpedo service are better than those built wholly for ramming; but they are still inferior to those built for service with guns only. The advantages of combinations of these weapons follow the same rule. (3.) While the gun is, on the whole, the superior weapon, it can be resisted more easily than either of the others. If it were as difficult to resist the effects of the blow of a gun as it is the blow of a torpedo or a ram, naval warfare would cease to be practicable. (4.) The growth of resistance to the gun encourages further increase in the power of the gun, and there appears at first sight to be no limit to this increase. The limit will probably be found in the cost of putting the gun afloat with proper protection for it, and proper speed. The cost will be reckoned in view of the exposure of each such gun to loss by the power of the ram and the torpedo, when they can be brought within the proper range of their operations. (5.) The torpedo can be made, within the proper range of its operations, irresistible.

There have been four important cases of ramming between English ironclads, viz., the *Hercules* ramming the *Northumberland*, the *Minotaur* bow on to the *Bellerophon*, the *Resistance* bow on to the *Devastation*, the *Iron Duke* bow on to the *Vanguard*. In all cases the blow was unexpected, and the ship was unprepared. In three out of the four cases the provision made against an accidental blow of the ram was effective. The gross area of the openings in the inner bottom of the *Vanguard* could not have exceeded a square foot. It will be admitted that much has been done in the way of protection against the ram. The *Vanguard* was greatly inferior in the matter of bulkhead divisions to the ship now in course of construction. The experiments against the bottom of the

Oberon showed a far higher resisting power than the double bottom system had been credited with. Notwithstanding this, it is idle to attempt to form the bottom of a ship strong enough to resist a fair blow from a powerful torpedo. (6.) It remains to be considered in what manner and to what extent the attack of the torpedo can be met, because it would appear that it only needs high speed and armour defence in the torpedo ship to give her control over the situation even in the day-time. (7.) The possibility of such attacks by armoured rams or torpedo ships, or by numerous unarmoured vessels of this kind, exposes the costly armour-clad ships to a risk which they ought never to encounter alone. The assailants ought to be brought to bay before they could get within striking distance of the ironclad by consorts armed like the attacking vessels with the ram and the torpedo, which may take, like them, the chances of being sunk. (8) There is still place in naval warfare for costly ironclads, and for association with them of unarmoured vessels armed with the torpedo, and manned by brave men. (9.) There is work also for lightly armoured and partially armoured ships, because any armour obliges the adversary to increase the power and diminish the number of his guns. Thin armour explodes most shells in the act of perforation, whereas with no armour the explosion would take place after perforation. (10.) Under the name of armoured ships I include all ships in which the means of propulsion and of offence are protected against artillery by iron plating, whether that plating be vertical or horizontal. Horizontal armour is displacing or supplementing, and is likely to displace or to supplement still more in the future, vertical armour. The change which has already taken place in this respect may be best indicated by comparing the following ships:—

Displacement.			Weight of Ver- tical Armour and Backing.	Weight of Horizontal Armour.	Total weight of Armour.
			Tons.	Tons.	Tons.
10,627	...	<i>Minotaur</i>	2,100	Nil	2,100
8,677	...	<i>Hercules</i>	1,849	100	1,949
11,165	...	<i>Inflexible</i>	2,585	967	3,552
8,492	...	<i>Ajax & Agamemnon</i>	2,000	720	2,720

(11.) The introduction of armour plating has tended to the advantage of England as compared with her rivals, because it has admitted of the use of iron instead of wood in the construction of ships of war, and it is now established that it not only admits of the use of iron, but it absolutely excludes the use of wood, except for secondary purposes. Our rivals are obliged to come to us for these materials, and follow us in the modes of construction. (12.) The torpedo has served, and will serve England also, by giving us the means of defending our coasts and

harbours effectively, and the invention of the Whitehead and Harvey torpedoes in particular, has placed in the control of our grand fleets of unarmoured merchant ships a weapon with which the most powerful ship of war may be disabled. (13.) The effect of these conditions upon the matter of speed—which is always a vexed question—is to reduce the speed necessary in the ironclad for line-of-battle, to maintain it at about the present standard for armoured cruisers, and to increase it in special vessels for despatch service.

In my view, the ironclad must continue to occupy the first place in naval warfare, and we have only to remember in how many and distant parts of the globe we should require to be present in force in a time of war with any great maritime power to see how far short the number of our ironclads falls of that which our extended and proud dominion requires.

The discussion which followed referred to the delay of our Admiralty to build torpedo vessels, the doubtful practicability of keeping torpedo vessels in company with ironclads at sea, the extension of the system of watertight compartments, and the rapidity with which our private builders could produce a fleet of torpedo vessels when these are wanted. Mr. Barnaby, in replying, said that England in time of necessity could readily obtain from private owners ships that were admirably adapted for torpedo boats.

“Unarmoured Vessels.” By T. Brassey, Esq., M.P.—In this paper the subject is treated from an administrative, and not from a constructor's point of view.

Certain axioms:—(1.) There must be a limit to expenditure. A prodigal outlay on our part will probably arouse the jealousy of foreign Powers, and lead to a proportionate expenditure on their own armaments. (2.) The expenditure on naval construction should be devoted mainly to ships intended for the line-of-battle—the most powerful fighting vessels. We are not prepared as yet to throw off armour from our first-class vessels of war. Unprotected vessels, therefore, are of subordinate importance.

By the Treaty of Paris, England and France have entered into a solemn contract with the maritime world to respect private property, not being contraband of war, if carried on ships bearing the neutral flag. Is it to our interest to seek to abrogate the treaty into which we have entered. Our maritime trade being infinitely more extensive than that of any other nation, the area of vulnerability which we expose to attack is infinitely larger than theirs. On the other hand, our superiority in actual preparations for war to any probable—I might almost say possible—combination of nations against us is incontestable, while our unrivalled

resources for the construction of the most powerful ships would give us the means of adding to our existing fleet with a rapidity which could not be equalled abroad. The necessity, for the costly ships of the *Bachanite* type disappears, and we can devote to the building of fighting ships the money we have hitherto expended on unarmoured vessels. These considerations point to the policy of maintaining the smallest possible unarmoured navy consistently with its efficiency for the police of the seas. For the training of seamen for the purpose of exhibiting the British flag in foreign parts, and especially in the harbours of semi-barbarous powers, who can scarcely realize the existence of a force unless it is visibly present to their gaze; for the repression of piracy and slavery, and for the punishment of offending savage tribes, we want not *Inconstants* nor *Opals*, but the infinitely cheaper little vessels of the *Mullard* class. We possess, in the overwhelming superiority of our merchant navy in the powerful ocean steamers, resources which are practically inexhaustible for the equipment of a fleet of unarmoured cruisers. This is another reason against the larger expenditure on unarmoured ships, than the public service for the time-being absolutely requires. The programme of shipbuilding proposed for the financial year 1876-77, seems wisely conceived with reference to all these various considerations. There will be added to the Navy in 1876-77, 23,762 tons, of which 11,393 tons will be armoured vessels. The armoured ships will of course absorb a far larger sum than the unarmoured vessels.

Vast tonnage is not necessary in order to obtain high speed. By increasing the dimensions a better result may be obtained for mercantile purposes with a given consumption of fuel; but economy of fuel is less important in a vessel of war, and multiplication of numbers is an important element of strength and efficiency. For European waters a large spread of canvas is not required, hence a subdivision of the unarmoured class, as proposed by the Committee on Designs, would appear advisable; the one class being furnished with a considerable spread of canvas, while the other might be lightly sparred, and have sufficient engine power to attain a speed of eighteen knots at the measured mile.

The amount of expenditure proposed for the Navy must at all times afford more or less occasion for debate, and the subject will undoubtedly be discussed with anxiety in the House of Commons; but as to the types—and this is what we have chiefly to consider at the Institution of Naval Architects—I venture to affirm that the recent course of the Admiralty merits our approval.

In the discussion it was remarked, that the unarmoured fleet at present at sea is insufficient for the purposes for which it is required, including

the training of young seamen; the advisability of building better cruisers; the mistake of imagining that unarmoured vessels should only carry light guns; little reliance could be placed on the ships of the Mercantile Marine in time of war, as the very best of them were built on the very narrowest margin of stability; the country should be prepared with large war ships, and then, when peace was disturbed, fast merchant ships could easily be fitted out to protect the trade; a large force of unarmoured ships of war essential for the supremacy of England on the seas; unarmoured vessels should not have heavy guns, which require to be worked by machinery—a larger number of lighter guns would be more likely to be efficient. In replying, Mr. Brassy expressed his regret that so large a proportion of the money which Parliament voted for naval purposes was spent not in the creation of additional naval strength, but in the maintenance and repairs of the ships already existing.

“On Circular Ironclads.” By Lieut. Gonlaeff, Imperial Russian Navy.—It was after many years of experience and study of the behaviour of the long ordinary ships at sea, that Admiral Popoff was induced to choose the circular form for the ships which ultimately have become known by his name. It has been chosen principally in consequence of the very important results obtained in this country by Mr. Reed, with his well-known broad and short ships, which superseded the narrow and long ironclads of early date. That induced Admiral Popoff to broaden all the ships of his own design, and to decide, as early as in the year 1868, the breadth of his ship, *Peter the Great*, as 64 feet, in order to supply her with the power of carrying 40-ton guns and 16 inches armour—unprecedented until then. Lately, with the same ideas in view, the admiral has proposed plans for broadening the existing narrow and weakly-armoured ships, built during the earlier period of the ironclad era, by cutting them longitudinally along the plane of the keel, separating the two halves, and inserting between them a new portion of bottom, thus enabling them, with a very small additional weight of hull, to get very great additional displacement for carrying guns of the increased size and additional layers of armours.

The limitation of draught for vessels for the defence of the Black Sea coasts to only about 13 feet, which excluded all but unarmoured gunboats, rendered an entirely new class of vessels requisite to admit the heavy guns and efficient armour protection, combined with a very small draught of water. No type of vessel could have been better adapted for this than the circular, because no hull of any other form, and of the same weight, could have enclosed so great a displacement upon the same draught. Two circular ships, of 96 feet in diameter and 12 feet 6 inches draught, were ordered to be built. The first, the *Norgorod*, was launched

and completed in 1873, and her sea qualities have been since tested by cruising over several thousand miles along the coasts of the Crimea and across the open sea to the Circassian shores, and found to exceed all expectations. Since these voyages she has been always entrusted alone at sea, as any other ship would be. The *Novgorod* is so steady that, when the waves swept alternately the low sides of the ship, they produced scarcely any effect upon the vessel, and I have been even able then to work comfortably with the drawing instruments, so unnoticeable was the rolling. At sea, during the equinoctial gales, the greatest angle the *Novgorod* made was six or seven degrees, never so much as to expose the lower edge of the side armour. The screws of the *Novgorod* are left more unprotected than in other ships, but they could be easily altered by arranging the screws in special tunnels or otherwise.

The second, *Popoffka*, has been made of greater diameter, the *Novgorod* being 101 feet, and the *Admiral Popoff* being 121 feet. The very small addition of 10 feet on each side of the vessel allowed the size of the guns to be increased from 28 tons to 41 tons each, to add to the armour additional 7 inches of solid iron completely round the vessel and the turret, making it now everywhere equivalent to 1 foot 6 inches. The power acting on each of the middle screws was also doubled. Next year a new floating dock, on Clark and Stanfield's principle, will be completed; there will then be no limitation of the diameter and size of the Russian *Popoffka*. The rest of this paper consists of speculations as to the extension of this system of construction to a vessel of even 320 feet diameter, with her 40 guns mounted in 20 turrets, enclosed in a two-storied castle, protected as well as the turrets completely round by 2 feet of iron; the upper tier of 80 or 160-ton guns, firing at a height of more than 20 feet above water, and at a horizontal distance from the edge of the deck of about 100 feet, so that no sea could reach them. A speed of 14 knots is associated with these larger dimensions, while they could steam a much greater distance than that between St. Petersburg and London with their own coal. They may carry their destructive armaments to bear against the shores in the enemy's own waters, against any modern individual ship, or a fleet of such vessels at sea.

“On Cellular Ships of War.” By H. J. Boolds, Esq., Lloyd's Surveyor.—Although ships of war are not generally divided into a greater number of water-tight compartments than merchant steamers, there are no considerations of cargo or stowage, or of despatch in loading or discharging, to weigh for a moment against the dangers which a ship of war—from the very “reasons of her existence”—is bound to encounter, and which she ought therefore to be guarded against. The drawings showed how the *Vanguard* might have been built on the cellular system,

so as to have been safe against such damage as she received from the ram of the *Iron Duke*, and, even if the *Iron Duke* had been an enemy, would have been able to continue the contest without immediate fear for safety or victory. Five hundred tons of iron judiciously expended, as I have shown, on each of the ships of our present Navy, at an expense of £20,000 each, would put twenty-five of them beyond the risk of such summary accidents, either in peace or war, at a cost not exceeding the price of the *Vanguard*, which, for want of this small addition, now lies at the bottom of the Irish Channel.

“On Certain Austrian Ironclads.” By E. J. Reed, C.B., M.P., Vice-President.—This paper principally referred to the new ironclad *Tegetthoff*, now under construction at Trieste. Her dimensions are 287 ft. by 62 ft. 9 in. at the water line; extreme length, 303 ft.; extreme breadth over the armour, 71 ft. 1½ in.; depth of hold, 34 ft. 9 in.; mean draught, 24 ft. 10 in.; weight of armour and backing, 2,160 tons, displacement, 7,290 tons; estimated cost of hull, £172,700; of engines and boilers, £81,715; two cylinders, 125 in. effective diameter, 4 ft. 8 in. stroke; propeller, 23 ft. 6 in. diameter, 24 ft. pitch, 2 blades; revolutions, 70 per minute, 4 boilers, 850 square ft. firegrate, 25,500 square ft. heating-surface, 1,800 square ft. superheating surface; steam, 30 lb. pressure, 36 furnaces, mean indicated horse-power, 8,000; estimated speed, 14 knots.

This ship has a belt of armour extending from the stern to within about 30 feet of the foremost perpendicular, where it terminates in a transverse armoured bulkhead, and a stout iron deck going forward to the stern at about 7 feet below water. In England, we have thought it better to keep the bow armour, carrying it down at the stern to considerably below the ram point. The Austrians, who have had practical experience of the effects of ramming in actual warfare, have in this, their largest and most powerful ship, preserved a very great length of under-ramming or spear-projection. The projection is 9 feet from the stern at the water-line, and 19 feet from the stern-head. In this ship the Austrians have, as far as possible, got rid of great curvature in the armour-plates; even the stern has such a form as enables the bending of the plates to be performed in only one way. The battery is of the projecting type, which so greatly facilitates the obtainment of direct fire ahead and astern. The sides of the vessel have been depressed into curved indentations in wake of the guns; this avoids the dangerous projection of the muzzle of the midship guns, an experience gained at the battle of Lissa; and, in addition to that, this plan affords increased horizontal training for the gun without enlargement of the port. There is a transverse bulkhead fixed abaft the foremost gun, an arrangement which will prevent the battery from being raked in chasing.

Certain wood-built ironclads of the Austrian Navy are being taken to pieces, with the object of replacing the wooden hulls with hulls of iron, the superior lightness of iron permitting a considerable increase of armour strength. The original engines, and most of the fittings of the wood ships are being used in the iron ones. The cost of these three armour-clads is about the same money as one ship like a *Triumph* class in our Navy. The speed with the old engines will be only twelve knots; but, instead of one ship, they have three rams—the most dangerous and secure weapons, compared with which, the action and effect of the aggressive torpedo is, in my opinion, doubtful and insecure, and may easily endanger the ship of its own fleet.

“On Tested Iron and Tested Ships.” By J. E. Scott, Esq.—The diagrams exhibited showed what the Admiralty's latest tests are, and also a list of some of the tests lately made on the Clyde. After all these uncommonly severe tests, I could have no more confidence in the iron than if it never had been put under the hammer; because, if you put a sharp man, who knows his business, at the testing, he will put almost any plate through. Different parts of the same bar or plate will show very different qualities in testing. A part from the centre of a bar of single iron will pass almost any test of ductility you can apply to it; that part where the bar was made cooled much more slowly than the ends, and therefore it is more ductile. Again, for tensile strength, you have only to take a piece from the end of the bar where it first began to cool, where it is the hardest, and where it has the very greatest tensile strength. The same course holds good in iron plates, bulb, tee, or channel iron. For this reason I have no faith in test-iron, in the sense of the word; in fact, I hold this mode of testing iron to be a mere farce, and nothing more or less than an annoyance to any one in any way connected with iron shipbuilding. The proper tests, in my opinion, are those that every pound, in a properly-built ship has withstood, viz., the working of each piece; for one has only to spend a few weeks about the construction of any vessel to see the torture that every part has to undergo. Where the trouble lies is, that these parts that turn out bad are not always rejected, but patched up and passed off. The test piece for which a bar has been rejected as laminated, may often be the sag end of the bar that has passed through the rolls last, and by being not at the highest welding heat, is inclined to separate into different layers. Then crystallization is taken as a test of the quality of the iron, whereas it is only an indication of the manner in which the fracture has been effected. The tensile strength by test is often some tons less than the actual strength of the iron, by reason of the testing holes being not quite centrally in a line with the centre of the section of the test piece.

Now what is to be gained from all this testing of iron? All I can say is, more rust and corrosion; a ten times quicker deterioration, because it is a well-known fact, that the finer the quality of the iron, the more readily does it corrode. In cast iron we have little or no diminution from oxidation, even when exposed alternately to wet and dry. But there is not a single case on record where the vessel came to grief through the iron used in her construction being bad. When bad iron ships do turn up, it is found to be from corrosion and neglect, when they get beyond the reach of the registries, and are too good to be classed. This is not due to the quality of the iron, but to downright neglect.

“On Double and Triple Cylindrical Vessels.” By Mr. H. A. Egerton. —This is a paper on that class of vessels best known to us by the latest specimen, the Dicey turn steamer. The advancement upon her model and dimensions will be appreciated from the concluding sentences of the paper. The insufficient supply of sound second-class beef to the working population of Great Britain is so thoroughly known, that no great stress need be put upon the value of any contrivance capable of utilising the abundant herds of Texas and the River Plate. The one objection which will, doubtless be generally urged against such a vessel as that proposed for crossing the Atlantic, 1,800 feet long, 420 feet beam, and drawing 80 feet of water, will be, that no harbours are accessible to such a ship. This, however, is by no means the case. Milford Haven is quite capable of receiving any reasonable number of such vessels, and Spithead itself is an excellent harbour for such a ship.

The next paper was on the Pumping and Ventilating Arrangements of the *Kaiser* and the *Deutschland* of the German Navy, and of the departure from these plans in recent Russian ships of war, especially the circular ships.

“The Present System of Seacocks and their Connections in Steamers.” By Mr. H. N. Spence:—This paper describes arrangements of seacocks, well known to most of our readers from Mr. Spence's trade circulars on this important subject. To recommend his plans, Mr. Spence has very properly made capital of some examples of confusion of cocks and pipes that have occurred in steamers lately, and have, in some instances, it is supposed, caused the loss of, and in others endangered, the vessel.

The next paper was one by Professor Osborne Reynolds, in which he gives an explanation of the tendency which a screw-propeller has to affect the steering of the vessel, different from that which is generally received. He attributes that and the vibration caused by the propeller to the difference

of speed of the upper and lower currents in the wake of the vessel. "Taking the mean slip as $\cdot 2$, and supposing the upper blades to be working in a current which has an onward velocity $\cdot 2$ greater than that in which the lower blades are working, then the slip at the tips of the upper blades would be $\cdot 3$, and at the tips of the lower blades only $\cdot 1$; so that the resistance at the tips of the upper blades would be three times as great as that at the tips of the lower blades."

OUR MERCANTILE MARINE.

(BY AN OLD CONTRIBUTOR.)

WE never could understand why the Government, with the strong majority at their command, did not press the Mercantile Marine Act, which they introduced last year, through Parliament. The shipowners and others who obstructed the measure in Parliament were much to blame; the amendments and additions they proposed could not be considered improvements. The withdrawal of the Act caused the sensational theatrical performance in the House which resulted in the crude, ill-digested Act passed at the end of last Session. In consequence of the fierce opposition to the Act of 1875, the Government have this Session introduced another Act, now passing through the House of Commons, which is by no means so good as the rejected Act of 1875. The disciplinary clauses in that Act, from 9 to 24 inclusive, should have been introduced into the Act of the present Session; but they are entirely omitted. The enactment of the duties and obligations of the shipowners, should have been accompanied by the enactment of the duties and obligations of the seamen, who, through the excited advocacy of their self-constituted champion, are displaying more and more every day, the necessity for a power to control their actions.

All the clauses of all the Acts of Parliament already passed, or to be passed, will not ensure the intelligent management of a ship at sea; that must proceed from the qualities of the parties in command. But it may be enforced by the directions of owners, who in most cases are exceedingly careless, and, having provided a good ship, well manned and provisioned, think they have done their duty. We do not think so. We consider that they should prescribe, by written or printed instructions, a certain course of conduct—a certain routine—which would at least remind those on board of their duties, and might ensure their per-

formance.

In regard to boats, their position, and readiness for use, how very deficient the management is, in a great majority of those fine large ships which are now sent afloat. There is scarcely a ship with even one boat properly equipped and ready for lowering, and many a life is lost at sea in consequence. Every boat on board ship should be stowed keel downwards; none should be bottom up on skids. Each boat should have oars, mast and sail, rudder, anchor and line, and compass, with two breakers full of fresh water, and a quantity of bread and preserved provisions in a locker aft under the stern-sheets. Whether placed in board or not, each boat should have tackles constantly rove in the davits. On leaving harbour the crew should be apportioned to the various boats, one officer, or leading seaman, being responsible for each boat and her gear being in order. *Once every week* every boat should be swung over the side, lowered down a certain distance, and restowed. The outer half of the chocks next the ship's side, should be made to fall down on taking out a pin, which obviates the necessity of hoisting the boat over the top of the chocks.

Nothing on board ship is of more importance to her safe navigation than the compasses, and nothing is more neglected. Iron ships are swung before they leave harbour, after launching—very often with only ballast on board. The vessel loads a cargo; it may be largely composed of iron, but no further trouble is taken with the compasses. Even while altering the position by navigating seas where the compass is known to be affected, no care is taken; no means adopted to find out the error. Any difference in the position of the ship from what the course steered should have shown, is immediately attributed to currents, a fertile source of apology, to all parties who find themselves in trouble.

Every day, when observations can be had, they should be taken for amplitude or azimuth, to test the error of the compasses; and the differences between the various compasses on board should be written down every watch. Such a system assures the correct course being ascertained.

It appears strange that commanders of fine large ships, should not compare the result of the observations and the reckoning, with any of the officers. It may be that they think it would be a lowering of the dignity of their position, or they may be afraid that some of the younger men may be more ready calculators, and likely to be more correct than themselves. But the system is extremely wrong, as the best navigator and calculator may make a mistake; and that should never occur, so long as comparison can prevent it. Every certificated officer should be called on as a duty, to work the sights for the chronometer, and the dead reckoning, and hand in the results every day at one bell to the commander. If the results vary, compare the workings, which should be

kept in a book at full length. One can scarcely fancy the second officer of a fine ship like the *Strathmore* not keeping any reckoning. The officers of every ship when in Channel should be shown the charts, and have access to them at all times. Think of the second officer of the *County of Ayr* in charge of the ship going down Channel, the chief officer undoubtedly drunk, and the captain under the influence of something which incapacitated him from conducting the vessel, never going below to look at the chart, never knowing what lights he was passing, and not ordering such a course to be pursued as would have kept the ship afloat. This he ought to have done, and we have done it under similar circumstances. One of the nautical assessors who was on the inquiry in the case of this ship, distinguished himself by asking this officer, why he did not throw a bucket of water over the captain, who was asleep on the skylight, a solution of the difficulty not provided for by Act of Parliament.

Not only should the usual routine of navigation be pursued by commander and officers, but on all occasions lunar and stellar observations should be taken, the height of barometer and thermometer, and temperature of air and water, should be written down every watch. When on shore the rates of the chronometers should be tested by artificial horizon. Nothing can be more interesting—nothing more enjoyable—than the conducting of a ship in such a manner.

We hear a great deal from time to time of bad sailors, but we never hear of injudicious officers. We remember the merchant service before there was any legislation to control it. We have seen men treated in the most barbarous manner imaginable. For simply looking displeased on an order being given, which never should have been given, we have seen a man knocked down, gagged with an iron bolt in his mouth, lashed to a ring-bolt, in the heat of a West India sun, and left there for hours. The fore-castle was not fit for a pig. There was no light allowed; neither tea nor coffee supplied, only the invariable junk one day, and pork the next, with water which could be smelt a hundred yards away, and bread actually crawling. Then, we have seen men managed, and we think they might be managed even at the present day, with consistent treatment. They should be spoken to as men; never sworn at. They should not be harassed at meal hours; watches should be promptly relieved; sail made or shortened as much as possible when the watches are being changed. They should be kindly treated in sickness. The preparation of such food as is supplied, should be carefully attended to; and on every occasion when possible, a greater amount of farinaceous food should be given. Reasonable liberty should be given them in harbour; and when the men ask it, refer them to the chief officer to grant or withhold it, which gives him a power that is valuable. Provide

for the man at the wheel a large and comfortable oilskin grego, to be transferred when he is relieved. On all occasions in bad weather, when there is exposure to wet and cold, keep the galley fire lighted, and supply hot coffee or tea as required. On Saturday, at sea, clear up the decks at noon; let the crew have the afternoon to make, mend, or wash their clothes. Discourage all such work on Sunday, and by all means on that day respect the *Domine in undis nos dirige* idea. Have Divine service, and give them books to read, which every ship should carry. When owners have several ships, each should have a box of different books, so as to effect a change.

If shipowners will issue instructions based on these ideas to the commanders of their vessels, they will relieve themselves of a great moral responsibility, and do for the merchant service what no Act of Parliament can accomplish. They will in the most effectual manner assist the efforts of Government, who, by their enactments, are most desirous to have a Mercantile Marine, in every way worthy of this great maritime country.

ATLANTIC STEAM FERRIES.—No. VIII.

THE AMERICAN LINE.

THIS last addition to the steamship companies trading between Liverpool and America has one feature distinguishing it from the others—namely, that it trades direct between Liverpool and Philadelphia. This fact has secured to it in the present Centennial year a very important position. It was obvious that the shippers of goods for the grand Exhibition in Philadelphia would seek the direct route in preference to that by New York or Boston, in order to avoid the extra railway journeys and the transshipments which their valuable products would otherwise have had to undergo. Nearly the whole of the goods for the British section, and a very large proportion of the goods for other sections of the Exhibition, have been forwarded by this line; and there is already on record the testimony of the Exhibition Commissioners that both the steamships and the terminal service have been highly satisfactory. Large numbers of the passengers whom the Exhibition will attract will seek this route, and the American Steamship Company will therefore have during the present year a very fair opportunity of bringing themselves more prominently under the notice of the public than they have yet been able to do.

It is not perhaps generally known in this country that Philadelphia is the terminal station of the great system of the Pennsylvania Central

Railroad, which controls all the chief lines between Chicago, St. Louis, Louisville, and Philadelphia; and a glance at the map with these railroads marked upon them will show that, in regard to distance from the West, Philadelphia has certainly the advantage over New York. The Pennsylvania Company have under direct control no less than 6,600 miles of rail. It was the fact of the favourable position of their city which led the energetic merchants of Philadelphia, in connection with the directors of the Pennsylvania Railroad Company, headed by Mr. J. Edgar Thomson, to set afloat this undertaking, which is the result of a determination come to to establish a company of purely American origin, with ships constructed by American shipbuilders, and, as much as possible, of American material. It may not be amiss to remind the readers of this magazine that, since the failure of Collins' Line, which was an American line, the American flag has not floated over any regular Transatlantic line of steamships of purely American origin and construction until the first vessels of this company were placed upon the Atlantic route. Accordingly, a charter was granted on the 18th April, 1871, for the constitution of this Company, and, notwithstanding the great competition which then and now exists between Liverpool and the various ports of the United States, the success of the Company has been from first to last assured. A wish of the Americans to return in some measure to the position they once occupied, is one which must ensure the respect and sympathy of every person who can view great commercial transactions with an impartial eye.

At the time this project was conceived, the steam-shipbuilding trade of the United States was practically extinct, and this result was attributed entirely to the protective duties upon iron, which made the construction of American ships too costly to enable them to compete with those which were continually being built upon the Clyde or upon the Tyne. We are not in a position to say whether the entire design of the State Legislature has been realised, but, so far as the construction of the vessels belonging to the American Line is concerned, there is no doubt that every anticipation has been thoroughly achieved. It may be that the great revival which was expected at the time in American shipbuilding and trade generally has not been realised; but it is easy to see that causes have intervened which no one can have apprehended, and that at any rate the one step which was taken has been satisfactory to those who projected it. It will be a peculiar source of gratification to the Philadelphians that the great traffic to and from the Centennial Exhibition will be conducted in American bottoms; and it may be expected, when we receive the accounts of the speeches and rejoicings which have taken place at the opening of the Exhibition, that we shall hear a good deal upon this particular subject, as well as upon the great

advantages of Philadelphia as one of the great commercial entrepôts of the American continent.

Immediately after the granting of the charter, Messrs. William Cramp and Sons, of Philadelphia, were contracted with for the construction of the four vessels which are now trading between the ports of Philadelphia and Liverpool, and which, in certain points of construction, are beyond question equal to any of the crack traders between Liverpool and New York. The first vessel, entitled the *Pennsylvania*, was launched in August, 1872, and made her first journey from Philadelphia on the 22nd May in the following year. The second vessel was the *Ohio*, and these were followed by the *Indiana* and the *Illinois*. At present the vessels of the American Line consist of the following:—

			Tons.		Horse-power.
<i>Pennsylvania</i> ...	...	...	3,104	...	500
<i>Ohio</i> ...	...	...	3,104	...	500
<i>Indiana</i> ...	...	...	3,104	...	500
<i>Illinois</i> ...	...	...	3,104	...	500
			12,416		2,000

Arrangements have been made, pending the construction of two other American ships, to run two English steamers, so as to maintain a regular weekly line between Liverpool and Philadelphia. As soon, however, as these new vessels are completed, the business of the Line will be conducted entirely by American built vessels. The steamships at present belonging to the Line are built very much upon the pattern of the pioneer vessel, the *Pennsylvania*, an account of which we extract from an article which appeared some time since in a Liverpool paper:—

“This fine ship, the *Pennsylvania*, measures in length over all 355 feet; her length from the forward part of the stem to the propeller is 343 feet, her moulded width of beam is 43 feet, and depth from the top of her keel to the top of her spar deck 34 feet 6 inches, giving a capacity of 3,854 tons of measurement cargo, or a capacity of carrying 5,141 bales of compressed cotton. With a full cargo, and her coal bunkers full, together with passengers, of whom she can carry 800, crew 90, and provisions and stores of all kinds on board, she has a draft of 20 feet 6 inches in fresh water; but a little less in salt water. She has one funnel, and is full brig rigged. Her engines are, in American phraseology, of the independent compound vertical direct-action propeller type, with surface condenser. Her high pressure cylinder is 57 inches in diameter, and her low pressure 90 inches in diameter, each having a stroke of 4 feet. She has three cylindrical boilers heated by eighteen furnaces, and tested to a pressure of 60 lbs. to the square inch of surface. Her propeller is

four-bladed, the blades being cast separate, and bolted to the boss. It is 17 feet in diameter, with a pitch of 24 feet, her average consumption of coal being about 40 tons per day of twenty-four hours. Besides her cargo-carrying capacity the *Pennsylvania* has also accommodation for about 100 first-class or saloon passengers.

"The saloon, which is a spacious apartment, is situated in the after-part of the ship on the main deck. It is well lighted by a skylight cupola by day, and by night by a fine array of chandelier lamps of peculiar and ornate character, which supply a very full amount of illumination, and display to advantage the elegant, indeed, luxurious, furnishing of the saloon. This may briefly be said to consist of six dining tables of massive walnut-wood of very tasteful design. The saloon is divided at option by tapestry curtains, whereby private parties can enjoy their own exclusive society. The wainscoting of the saloon is of ash framing, with mouldings of walnut and gold, and the panels are of red cedar, highly polished and ornamented with gold inlayings. The general effect is greatly enhanced by a profusion of mirrors, and tastefully-arranged ornaments. The upper portion of the saloon companion-way to the spar deck is large and roomy, and, being covered in by a house on deck, is admirably suited for a sitting or reading-room. In another house on deck there is a commodious and luxuriously furnished smoking-room. The state-rooms or sleeping-apartments are arranged on both sides of the saloon. They are capacious, light, and elegantly furnished, and the ventilation in every part of the ship is ample and under thorough control, while an equable temperature is secured by means of steam-pipes through all the passenger compartments. The *Pennsylvania* has also very superior accommodation for intermediate and steerage passengers, and she is abundantly supplied with cooking apparatus of the best and most complete character.

"The life-preserving appliances on the spar deck are of extra capacity and number, consisting of ten large lifeboats and ten life-rafts, each of which latter will carry twenty persons, and are supplied with bread-and-water lockers and oars. The lifeboats will carry sixty persons each, and are supplied with sails and oars, and provided with provision and water lockers. Ample provision of hose and other apparatus for the prevention or extinction of fire is placed in different parts of the ship. From the preceding statements it will be readily evident that great care and forethought have been bestowed on the construction and equipment of the ship to ensure the comfort and safety of all on board, peculiarities which are equally observable in the other steamers of the fleet belonging to the American Steamship Company."

It may readily be understood that the American Steamship Company

did not at its commencement propose to itself anything like a competition in the race for speed which has so long been going on among the Atlantic steamship companies, and which for the time has been settled in favour of the *Germanic*, of the White Star Line. Cape Henlopen, which occupies the same position to Philadelphia and Delaware Bay as Sandy Hook does to New York, is, according to the usual rate of sailing, some eight hours further from Liverpool than Sandy Hook; yet the American Line, without any special effort, averages only sixteen hours behind the average fast passages of the celebrated White Star Liners. One peculiar feature of the passages of these steamers is their surprising regularity. They have no very amazing voyages, but their average time has been a little over ten days. The steamship *Ohio* has made the passage in eight days twenty-three hours, which, allowing eight hours for the longer passage, is equal to a New York run of eight days fifteen hours. The following abstract of two years' voyaging of the steamship *Illinois* will show that the Philadelphia-built ships are by no means unworthy rivals of those which, before the present depression of the American trade, were turned out with such regularity from the Clyde, Belfast, and the Tyne:—

EASTERN PASSAGES.

Voyage.	Date Sailing.	From	To	Time of Passage.			Distance.	Average Speed.
				Days.	Hrs.	Min.		
	1874.							
2	Mar. 5	Cape Henlopen	Roche's Point.	9	23	22	2926	12-22
3	Apr. 16	"	"	9	17	53	2963	12-67
4	May 28	"	"	9	14	18	2960	12-85
5	July 9	"	"	9	19	16	2963	12-59
6	Aug. 21	"	"	9	10	3	2861	12-66
7	Oct. 1	"	"	9	13	5	2874	12-54
8	Nov. 12	"	"	10	1	8	2864	11-88
9	Dec. 24	"	"	9	9	2	2866	12-74
	1875.							
10	Feb. 2	"	"	9	12	10	2943	12-90
11	Mar. 18	"	"	9	16	38	2974	12-78
12	Apr. 29	"	"	9	6	58	2994	13-43
13	June 10	"	"	9	3	13	2995	13-66
14	July 22	"	"	9	23	59	2979	12-37
15	Sept. 2	"	"	9	14	38	2872	12-45
16	Oct. 14	"	"	9	14	11	2865	12-44
17	Nov. 19	"	"	10	12	27	2857	11-32
18	Dec. 27	"	"	9	14	1	2870	12-48
	1876.							
19	Feb. 4	"	"	9	3	29	2897	13-20
Aggregate				173	13	51	52523	227-18
Average eighteen passages east . . .				9	15	26	2918	12-62

WESTERN PASSAGES.

Voyage.	Date Sailing.	From	To	Time of Passage.			Distance.	Average Speed.
				Days.	Hrs.	Min.		
	1874.							
2	Mar. 21	Roche's Point	Cape Henlopen	12	6	0	2913	9-91
3	May 2	"	"	10	3	11	2930	12-05
4	June 18	"	"	9	16	12	2907	12-53
5	July 30	"	"	11	10	30	2859	10-41
6	Sept. 10	"	"	9	16	0	2852	12-29
7	Oct. 22	"	"	10	8	33	2857	11-09
8	Dec. 4	"	"	12	8	59	2879	9-74
	1875.							
9	Jan. 14	"	"	12	17	9	2875	9-42
10	Feb. 19	"	"	11	20	8	2914	10-25
11	April 8	"	"	9	15	13	2960	12-30
12	May 20	"	"	10	22	25	2975	11-34
13	July 1	"	"	9	17	52	2945	12-59
14	Aug. 12	"	"	10	2	48	2861	11-78
15	Sept. 22	"	"	11	1	11	2871	10-82
16	Oct. 30	"	"	9	22	12	2872	11-96
17	Dec. 8	"	"	10	18	36	2867	11-09
	1876.							
18	Jan. 13	"	"	11	12	48	2874	10-45
19	Feb. 24	"	"	12	1	38	2960	10-25
Aggregate				196	5	25	52171	209-7
Average eighteen passages west				10	21	38	2898	12-00
Average of thirty-six east and west passages				10	6	32	2908	11-00

The following is a statement, issued from the Philadelphia office, as to the general working of the same during the past year :—

COMPARATIVE AVERAGES OF SHIPS' RUNS IN 1875.

			D.	H.	M.	Each Way.
<i>Pennsylvania.</i>	Henlopen to Queenstown	...	10	0	57	
	Queenstown to Henlopen	...	11	8	57	10 16 57
<i>Ohio</i> ...	Henlopen to Queenstown	...	9	22	52	
	Queenstown to Henlopen	...	10	11	44	10 5 18
<i>Indiana</i> ...	Henlopen to Queenstown	...	9	17	51	
	Queenstown to Henlopen	...	10	14	31	10 4 11
<i>Illinois</i> ...	Henlopen to Queenstown	...	9	14	44	
	Queenstown to Henlopen	...	10	20	24	10 5 34

The interests of the American Steamship Company have been entrusted to Messrs. Peter Wright & Sons, of Walnut Street, Philadelphia, a firm of well-known eminence in the Quaker city. In Liverpool it is represented by Messrs. Richardson, Spence & Co., of Water Street, an old and much respected firm, whose American connections extend to the period.

before steamships engrossed the Transatlantic trade. The American Line carries the United States mails, a proof of the support and confidence it enjoys among the public men on the other side of the Atlantic. During this centennial year, also, it will occupy a foremost position among the companies trading across the Atlantic, and it will surprise no one to find that the result will be to place it—although it is the last comer of the Liverpool Atlantic steamship companies—among the best of those which have preceded it. The great strength of the Company, it will be observed, is its connection with the Pennsylvania Railroad Company, which of course, with its 6,000 miles and more of line, can feed it with any amount of traffic. If we can imagine the London and North-Western Company owning a line of steamers plying from Liverpool to New York, or the Great Western Company in a similar position with regard to steamers trading from Bristol, or Milford Haven to New York, we have an exact parallel to the relation of the American Steamship Line to the Pennsylvania Central. The resources of Pennsylvania State alone are sufficient to maintain the goods' traffic of the present steamers at its full capacity.

The article before-mentioned, in speaking of the resources of Philadelphia as a reason for the success of the new line, says :—"The State of Pennsylvania possesses large mineral deposits, including iron, copper, and lead ; but its principal mineral consists of coal, almost exhaustless in extent. The coal-field, of which this State contains a part, extends along the Alleghany range of mountains, from Lock Haven in Pennsylvania South-West into Alabama, and is 875 miles in length, its breadth varying from 30 to 180 miles ; its total area measuring 59,976 square miles, of which Pennsylvania possesses 12,656 square miles. Large deposits of iron surround this coal-field, mostly hematites ; and some idea of the value of this coal-field to the State of Pennsylvania may be formed from the fact that, in 1864, the coal raised in that State amounted to 5,870,712 tons, mostly worked, be it recollected, in the neighbourhood of the city of Philadelphia. Another important natural product of Pennsylvania, and one which has comparatively only recently been discovered, is petroleum. Of this article immense quantities are exported from Philadelphia, although a large portion of the export is from Baltimore. In 1874 the export of petroleum from Philadelphia was 80,166,157 gallons of refined, of the gross value of \$14,967,786, besides a large quantity of the crude oil. This city, which in 1887 contained a population of 167,886, and which in three years later had risen to upwards of 200,000, now embraces a population of over 800,000. In point of area extent it is the largest city in the United States. It is surrounded by a rich agricultural country, and is the largest manufacturing city in America, containing 8,579 manufacturing establishments, which employ a capital

to the extent of \$204,840,687, and use up annually raw material to the value of \$193,861,297. The annual value of its manufactured productions is \$362,484,698, and this production gives employment to 100,661 men, 40,760 women, and 11,129 youths, who earn aggregate wages to the amount of \$68,647,874 per annum. Its natural position, and the favourable connection it has by railway and water carriage, render Philadelphia one of the greatest grain and produce markets of the world, which, added to its vast manufacturing power, entitle it to high consideration in the world of commerce, that consideration being enhanced by the fact that, although 100 miles from the sea, it has the advantages of a double port, the river Delaware, on which it is situated, being a mile in width, accessible to vessels of the largest size—which can be moored alongside of its commodious warehouses—and the river Schuylkill is navigable by vessels of 300 tons burthen. By means of the Pennsylvania Railroad, the city is directly connected with every part of the United States, and, through its water carriage with Europe and other countries, of the old world."

With the revived trade which it is expected will follow the Centennial in America, we may expect to see this important line—the only one sailing under the American flag—take what our American friends call a "new departure." Everything that American patriotism and enterprise can do to facilitate its operations, or to increase its prosperity, we may be sure will be done; but we need not be jealous on this head, for what will benefit America in this matter will be equally to our own profit.

MERCHANT SEAMEN AND THEIR DUTIES.

To the Editor of the "Nautical Magazine."



SIR,—“Are our seamen deteriorating?” is a question put prominently forward in this month's *Reporter* from the Mercantile Marine Service Association, Liverpool. The writer continues, “Good seamen are scarce, and although on the average they command a high rate of wages, yet they are, on the whole, inefficient.” And then follow sundry suggestions as to Government interference.

It may be, and probably is, true, that our seamen are not what they were in days gone by, when the only propelling power was canvas. In those days it was essential, in order to make a passage, that sail should be carried; studding-sails were the rule, and not the exception, and there was an abundance of work aloft for both men and boys. The introduc-

tion of steam, and the almost entire disuse of studding-sails, have simplified the work of the crew. And considering the altered condition of seamen on board ship, and the nature of their duties, it would be surprising (when we realize the extension of our trade and shipping) if our seamen in every particular, reached the standard of the men who manned our ships in former years.

In former years the merchant ship was the nursery for seamen, where they were taught by degrees in every department to understand their duty. Less was then heard of riggers and shore-gangs. The crew had much to do with the vessel in harbour and at sea, in dry dock and afloat, in the hold and aloft, and, as a consequence, master and men were better known to each other; his influence was greater, and, as a consequence, their several duties were performed with much more interest and satisfaction. That there has been a change in these several details, and that the seaman, as a rule, is no longer required to do much which in former years afforded him healthy occupation, and interested and attached him to his ship, is, I presume, the result of circumstances brought about by free trade and steam, and the active competition against which the merchant shipping of this country has had to contend. The shipowner must bend to existing difficulties, and, where needful, alter his system of management; but it is to be regretted that the link between the owner and the seaman is rendered so frail, and that each is brought to consider, not what they can do, so as to be mutually satisfied, but how they can best arrange terms, so as to gain an advantage which ends with the voyage. Well may any thinking man who is capable of reflection weary of such a life, with possibly nothing to interest him on his dreary voyage, and a sailor's home or a crimp's house to resort to when in port; and it will require something more than legislative enactments, or Government aid, to improve the condition of such men, and lead them to a course beneficial to themselves and to their employers. As it is, we are, by an unhappily divided action, widening the chasm which we are all, I believe, anxious to bridge, but which certain philanthropical people, by their sensational efforts affecting the sailor's interest, are most effectually widening.

Training-ships may be established, or the good old apprenticeship system extended, and much may be done to improve the seaman's nursery. But will this remedy the evil? Will this of itself suffice to remove the evil, and afford us men of the character and stamina of by-gone years? I think not; unless we can train the officers and masters to act *their* part as they did of old, and to take that interest in the training and efficiency of their men, which some people would force on the Government.

Without doubting the case of the *Galicia*, referred to in the *Reporter* of the Liverpool Mercantile Marine Service Association, where, out

of twenty-four seamen, comprising the ship's company, one only could heave the lead,—I would submit such a state of things could not exist if the master and officers of the vessel they had previously sailed in had entertained any interest, either in their seamen or their ship. Out of these twenty-four, we are told, some had been eleven years at sea, without having seen the hand-lead hove. Four ordinary seamen had served a period of years on board a training-ship, where they had been taught the use of the lead-line, whilst others had not the faintest idea how to heave the lead at all; even a R.N.R. man confessed his ignorance. It is all very well to animadvert on training-ships, and the Naval Reserve, but on such a vessel as the *Galicia*, it is hardly reasonable to suppose that the whole of her crew were strangers to the P. S. N. Co.; be that, however, the case or not, it is evident that the master of "that vessel" was an exceptional and good friend to them, and was simply true to his duty as a shipmaster by proving them as he did, for had any interest whatever been manifested in this important duty by their previous masters, it is hardly reasonable to suppose almost the whole ship's company would have failed to qualify themselves for its performance.

In Her Majesty's service the hand-lead is never neglected when in soundings; and in many parts of the globe, where Government laws can be enforced, all vessels under way in shallow waters must have a hand in the chains; and if such regulations are essential in Her Majesty's ships, and in merchant vessels in certain localities abroad, why should the hand-lead be so thoroughly neglected at home? Why should vessels be allowed to navigate the dangerous channels that lead to many ports on our coast without any lead being hove at all, oblivious to the existence of sandbanks and unseen dangers, trusting entirely to buoys and landmarks, and anything that will serve their purpose and save trouble? We know, in some cases, small vessels—coasters, to wit—have but few hands, and none to spare; but this is not always the case, and even in coasters, the hand-lead might be hove from the waist, and, in this way, valuable experience gained, and the crew trained in a most important duty. If we could only recall half a century or less, ways and means would be found to do many things which are now neglected.

If legislation took any shape at all in dealing with the efficiency of our seamen, it should, I submit, be by testing the interest that had been manifested in them by the shipmaster; and where there was such flagrant evidence of ignorance as that manifested in the performance of an important duty, as appears to have been the case on board the *Galicia*, unless the official log justified the master, I submit he should be held responsible, at least, in issuing to such men a character. To hand, reef and steer, bending sails, reeving gear, fitting rigging, stowing cargo; and

generally a sailor's duty is made up of details, in regard to the performance of which a serious evil might result if incapacity characterised the man ; and this would be less likely to occur if such duties were severally in turn to receive occasional attention. I have no doubt the seaman himself would rebel against any such system ; trained in ignorance, he might not see the value of experience, and would prefer passing his time in idleness, loafing about the decks and brooding over mischief ; but if such training were the custom, the sailor would have to yield as the shipmaster might in reason prescribe.

The cry is not that we have not sailors so much as that our seamen are deteriorating ; and therefore it behoves the Legislature and the ship-owner to act in concert, and by common consent adopt measures for their improvement. This end can never be attained by the exclusive action of Government, in putting the shipowner on one side and encouraging the seaman to idle away his time to the prejudice of his employer. Neither can the desired end be attained by early training alone. An apprentice may at the outset have a strong inclination for a sea life, but practice alone will make him perfect ; and unless his attention is directed, and he is " taught " to understand the details of his work, be assured there will always be evidence of deterioration in that man ; be assured the required knowledge will not come to him intuitively ; it must be ground into him, and therefore the master of such a vessel is responsible for the result. The merchant shipmaster is invariably willing, and frequently he will voluntarily undertake most troublesome records for the Meteorological office, and in many instances, in the furtherance of science, he derives fruitful results himself, and I am persuaded it is only necessary to direct the shipmaster's attention to the improvement of the seaman, and by judicious rules for his guidance assist him on with this very difficult duty, and he shall soon find the result will be as interesting to the shipmaster as it will be productive of good to the men themselves, and beneficial to their employers.

The following is extracted from the *Nautical Magazine* for August, 1875, p. 683 :—

" Mr. Stirling Lacon informs us on good authority that in one of the north-eastern ports the crimps have a large shed or manufactory for sailors. They get dock labourers, and any refuse of the population, which a few years ago would not have been admitted on board ship, &c., &c. ; they take him to a shed where there is a cart-wheel, by means of which they teach him to steer. In the centre of the shed there is a cow's horn on a pedestal, round which they march him, in order that if any questions are asked, they may say they have been round the horn. But when asked how they are taught to heave the lead, *that*, my informant assured me, was too antiquated an idea altogether."

And again, in the *Nautical Magazine* for December, 1875, p. 1,025 :-
 " We rather think the fault is that they " (the seamen) " have not kept pace in improvement with men of other trades, and that now, as of old, the majority of 'ne'er do weels' go to sea, &c., &c. The great development of the steam trade has no doubt largely assisted to lower the standard of professional capacity and ability of our seamen ; a steamship may be worked with a crew " (excepting, of course, the engineers) " that would be utterly worthless on board a sailing vessel, where practical knowledge and seamanship are required. But, apart from this and other causes, there is an evil at work to which the attention of shipmasters should be specially directed, since it is one that lies solely within their own power to remedy. We refer to the almost universal practice of giving V. G. discharge certificates to good and bad men alike, &c., &c. Hence it is that men become careless and indifferent, and discipline becomes relaxed ; and the most worthless characters come to look upon the V. G. as their right, and feel themselves insulted if they are reported simply as good, &c. There can be little doubt if shipmasters made it an invariable point of honour to describe each man of his crew exactly as he had been found during the voyage, the quality of our seamen generally would soon show a marked improvement, &c. The remedy lies in a great measure in their own hands ; if they would only make a practice of issuing really honest certificates, they would lay the foundation of a reform, the necessity for which is known to none better than to themselves."

The foregoing is well worthy republication, and deserves all consideration from the shipmaster, who is so largely interested in this important question. Let the shipmasters only be true to themselves, and to each other, and the seaman will soon find he cannot pass himself off as an A.B., unless he possesses the qualification for that post.

Legislation may not be desirable. I do not say that it is, so far as the seaman is concerned ; for, from my knowledge of him, he is well able to take care of himself. But if legislation can provide for his comforts as it has done, and make provision calculated to guard against collisions, as it has done, and against the use of defective ground tackle, as it has done, surely it can, at least, go the length of enforcing the use of both deep sea and hand-leads when vessels are navigating shallow waters, and when such a rule would not only serve to warn the shipmaster of an unseen danger, but train the seaman " for one of the most important duties he has to perform."

Yours faithfully,

VERITAS.

Middlesborough, April 29, 1876.

THE PERIODICITY OF HURRICANES.

UNDER this title, a paper of some practical interest has lately appeared in the *Revue Maritime et Coloniale*, March-April, 1876, which deserves more attention than it seems as yet to have received. The object of the paper is to prove the existence of a certain periodicity, depending on luni-solar influence, in meteorological phenomena generally, and in the greater atmospheric disturbances of the tropics more particularly. The writer is a French naval officer, already known by his contributions to hydrographical and meteorological science—the Vice-Admiral Fleuriot de Langle, and his argument may be briefly stated thus:—

If due weight be given to the consideration that luni-solar attraction (the influence of which upon the atmosphere is demonstrated by the existence of barometric tides, in which, as in the oceanic tides, *lunar* attraction is found to largely predominate) depends on the relative positions of the sun, moon, and earth, and that these three bodies return periodically to the self-same relative positions, it is not exceeding the bounds of legitimate inference to assume that the phenomena induced by such attraction will exhibit a corresponding periodicity.* Is, then, such periodicity exhibited by meteorological phenomena? M. de Langle is convinced that it is, and that the fact admits of practical demonstration. He has endeavoured, he states, to bring together the largest possible number of trustworthy meteorological data, and to group and co-ordinate them, so as to illustrate the action of the sun and moon on the atmosphere of our planet. To this end he has employed a series of daily meteorological observations taken at the Naval Observatory at L'Orient, and extending over a period of sixteen years, a collection of eight years' observation from Brest, and a mass of data obtained from the Observatory at Paris, and other sources. These he has grouped and classified, carefully collating the curves representing the several groups of astronomical and meteorological phenomena. The conclusion he has arrived at is, that the effects of lunar or luni-solar influences on the curves of barometric pressures, wind pressures, atmospheric temperatures, and rainfall, is palpable and unmistakeable, although more extensive and prolonged observation will be requisite before the results can be formulated completely for all parts of the globe. Two points may be

* An eminent French seismologist has lately called the attention of the Academy of Sciences to the fact that earthquakes generally occur at the time of full or new moon, and that of all the earthquake-shocks registered during the thirty years period, 1843-72, several thousand in number, by far the largest proportion coincided with the times of moon's apogee or perigee.

noticed as of universal application—that the wind-pressure increases from 1st to 3rd quarter of each lunation ; and that, where there is no disturbing influences in the shape of land-surfaces, the wind rises and falls with the rising and setting of the moon. These phenomena are strongly marked in hurricanes.

As the deductions from comparison of the curves would scarcely be intelligible without the curve-diagrams, which accompany the original, we will pass on to the second portion of the paper, in which Admiral de Langle tests the accuracy of his conclusions by the hurricane records of the tropics.

A hurricane, *per se*, admits of no prediction further than the barometrical or other warnings that precede its immediate approach. But hurricanes classed by the month and year of occurrence are found to exhibit a marked affinity for particular seasons and particular years. The season, no doubt, is determined by the sun's place in the ecliptic, and the geographical position of the locality. The years, according to M. de Langle, correspond in a remarkable measure with the lunar cycle of nineteen years.*

Assuming that certain astronomical conditions are essential to, or generally coincident with, the occurring of a hurricane, we have now to consider what those conditions are. M. de Langle states them thus:—

“When the declinations of the sun and moon are such as to bring either into the zenith of a given locality about the time of new or full moon, or of one of the quarters, or when the moon is in apogee or perigee, or about the time of an eclipse of the sun or moon, a hurricane may be looked for there. And the probabilities in favour of the hurricane will be greater, in proportion as the time of the moon's apogee or perigee approximates to that of new or full moon.”

Of 195 hurricanes, of which M. de Langle has collected details, 109 corresponded within three days with the time of the moon's apogee or perigee, and 56 with eclipses of the sun or moon.

The effect of an eclipse, or rather of the positions of the sun, moon, and earth, necessary to the production of the phenomenon, in *intensifying* the effects of luni-solar action on the atmosphere, is a point on which M. de Langle lays great stress. “The fact,” he says, “was known to Columbus, who has recorded that he was enabled to save a portion of his fleet from a frightful hurricane by the timely warning afforded by an eclipse.”

So far as M. de Langle's investigations have allowed him to judge, the conditions essential to the production of these atmospheric disturb-

* To render the present paper as short and practical as possible, all reference to abstract astronomical and chronological details have been omitted.

ances are identical in both hemispheres; and he mentions the curious fact that not only have the years which have been remarkable for the prevalence of hurricanes in the Antilles been equally distinguished by the frequency of such phenomena in the eastern hemispheres, both north and south of the line, but that of the typhoons of the China seas, of which he has been able to obtain details, 25 *per cent.* happened on the self-same days of the month and year as hurricanes in the West Indies.

From the "pièces justificatives" appended to the paper, we take the following "Classification of Hurricanes in the West Indies and Bermudas, according to the Lunar Cycle of Nineteen Years." The prefatory notes show the astronomical and geographical circumstances of various West India hurricanes. The limited space at our command has necessitated the abridgment of some of the minor details. Appended thereto are the heads of a Table for determining the probabilities in favour of a hurricane in these localities on any given date, so far as these can be determined from the records of past years.

CLASSIFICATION OF HURRICANES IN THE WEST INDIES AND BERMUDAS, ACCORDING TO THE LUNAR CYCLE OF 19 YEARS.*

Prefatory Notes.

CYCLE 1.

This cycle includes several important hurricanes, of which no astronomical data have proved available.

CYCLE 2.

Hurricane at Belize on 23rd September, 1787. — Lat. 19° N., long. 90° W. (Paris); sun's declination at Belize on above date, 0° 4'; moon's declination, 13° 11'; time of moon's southing, 17 h. 20 m.; moon's age, 13 days; moon in apogee, 19th September; full moon, 27th September; new moon, 11th September; no eclipses during the month.

On 3rd September, 1787, Belize and Dominica were swept simultaneously by a hurricane. On 17th September a hurricane was experienced in lat. 17° N. On 23rd, Dominica and Belize were again visited. Hurricane of 23rd commenced at Belize at 4 a.m. Maximum force of wind agreed with time of moon's rising. Course of hurricane, E.S.E. to W.N.W. Tremendous sea. Tide at Belize rose 70 ft. above ordinary level.

* Paris longitude and time are given here as in original. Long., Paris Observatory, 2° 20' 00", E. Greenwich.

Hurricane at Guadaloupe on 25th July, 1825.—Lat. 14° N., long. 63° W. (Paris); sun's declination, $19^{\circ} 40'$; moon's declination, $23^{\circ} 14'$; moon's parallax, $57' 51''$; moon's southing, 8 h. 38 m.; moon's age, 10 days; moon in perigee, 19th July; full moon, 30th July; new moon, 15th July; no eclipses during the month.

First indications came from northward, with an overcast sky and falling barometer. Hurricane commenced on morning of 25th July, 4 days after moon's apogee. Wind at greatest height 2 hours after moon crossed meridian, and lulled at setting of the moon. Apparent course of hurricane, S.E. to N.W. Wind very destructive. Official accounts report 200 persons drowned by the sudden flooding of the streets of Basse-Terre. Three 24-pounder guns hurled from their carriages. Electrical phenomena accompanying hurricane very remarkable.

CYCLE 3.

Hurricane at Martinique on 14th August, 1788.—Lat. 14° N., long. 63° W.; sun's declination, $14^{\circ} 6'$; moon's declination, $19^{\circ} 52'$; moon's parallax, $54'$; moon's southing, 10 h. 37 m.; moon's age, 13 days; moon in apogee, 15th August; full moon, 16th August; no eclipses during the month.

Hurricane in United States on 19th August, same year.—Lat. 35° N., long. $77^{\circ} 51'$ W.; sun's declination, $12^{\circ} 30'$; moon's declination, $3^{\circ} 17'$; moon's parallax, $56' 59''$; moon's southing, 13 h. 22 m.; moon's age, 18 days; moon in apogee, 15th August; full moon, 16th August.

Hurricane at Dominica on 29th August, same year.—Lat. 15° N., long. 63° W.; sun's declination, 9° ; moon's declination, $12^{\circ} 40'$; parallax, $60' 54''$; moon's southing, 14 h. 23 m.; moon's age, 28 days.

Hurricane commenced in neighbourhood of Martinique with the sun in the zenith at that island, and took 5 days to traverse the Antilles. Moon was in apogee about time of full moon.

CYCLE 4.

Hurricane at Martinique and St. Martin on 17th August, 1827.—Lat. 16° N., long. 64° W.; sun's declination, 13° ; moon's declination, $19^{\circ} 40'$; parallax, $54' 57''$; moon's southing, 2 h. 40 m.; moon's age, 25 days; moon in apogee, 17th August; full moon, 7th August; new moon, 2nd August; no eclipses during the month.

Hurricane originated near Martinique, and was felt at St. Martin on 17th, at St. Thomas on 18th, passed N.E. of San Domingo on 19th, reached Turk's Island 20th, Bahamas 21st, Florida 22nd, Carolina 23rd.

Cape Hatteras 25th, Delaware 26th, Nantucket 27th, and Cape Sable 28th of month.

Hurricane at Martinique, St. Martin, and Cuba, 6th October, 1846.—Lat. 23° N., long. 84° W.; sun's declination, $5^{\circ} 7'$; moon's declination, $12^{\circ} 21'$; parallax, $55' 20''$; moon's southing, 19h. 54m.; moon's age, 16 days. Moon in apogee, 14th October. Full moon, 4th October; new moon, 18th October; eclipse of the sun on 30th October.

Most destructive at Havannah, where it commenced with moon's rising on night of 10th. Out of 120 vessels in port only 3 or 4 escaped. Rarefaction of the air so great and sudden that numbers of windows on shore were broken *outwards*.

Hurricane at Guadaloupe on 24th September, 1865.—No details.

CYCLE 5.

Hurricane at Bermuda on 19th September, 1820.—Occurred on 14th day of moon. Corresponds with hurricane of September, 1809.

Hurricane at Tobago, 10th October, 1847.—Lat. 13° N., long. 68° W.; sun's declination, $6^{\circ} 39'$; moon's declination, $9^{\circ} 38'$; moon's southing, 0h. 36m.; age, 2 days; apogee, 8th October; perigee, 23rd October; full moon, 20th October; new moon, 9th October; eclipse of moon, 23rd October; eclipse of sun, 9th October.

Hurricane commenced at Tobago at 10 p.m. on 10th October. Was accompanied by violent and destructive earthquakes. Attention is called to the coincidences presented by the above dates.

CYCLE 6.

Hurricane at Antigua and St. Kitts on 18th August, 1772.—Lat. 17° N., long. 64° W.; sun's declination, 13° ; moon's age, 19 days.

This hurricane made itself felt with exceptional severity in San Domingo and Cuba. At Havannah, all the vessels that could not get out to sea were wrecked. Port au Prince also suffered severely, the hurricane raging there from 3 p.m. on 18th, to 3 p.m. on 19th; apparent course, S.E. to N.W.

Hurricane at Jamaica and St. Domingo on 24th August, 1772.—Commenced with an eclipse of the sun a few days before new moon. Corresponds with other hurricanes of the same cycle.

Hurricane at Antigua, 18th August, 1848.—Lat. 17° N., long. 64° W.; sun's declination, $1^{\circ} 29'$; moon's declination, $17^{\circ} 4'$;

parallax, $56' 57''$; moon's southing, 19h. 26m.; age, 22 days; perigee, 15th August; full moon, 8th August; new moon, 20th August; eclipse of sun, 27th August; eclipse of moon, 18th August.

Wind rose at Antigua on 18th, *i.e.*, 4 days after the moon was in perigee, and 6 days after a solar eclipse, 8 hours before the moon, and abated at the setting of the latter. Moon in zenith. Hurricane accompanied by thunder and lightning, and violent earthquake shocks.

CYCLE 7.

Hurricane at Jamaica on 7th August, 1830.—Lat. 18° N., long. 79° W.; sun's declination, $16^{\circ} 31'$; moon's declination, $2^{\circ} 27'$; parallax, $59' 31''$; moon's southing, 14h. 4m.; age, 19 days; apogee, 23rd August; perigee, 4th August; new moon, 18th August; eclipse of the sun same date.

Swept the whole West Indies. Was at St. Thomas on 12th, Turk's Island 13th, Virginia 15th, Maryland 17th, and Cape Sable 18th. Commenced when moon was in perigee on day of 1st quarter, and sun in zenith of St. Thomas. On 19th of same month Martinique was visited by another hurricane, corresponding with that of 18th, 19th August, 1792, which also extended to America.

CYCLE 8.

Hurricane at Barbadoes on 10th August, 1831.—Lat. 13° N., long. 61° W.; sun's declination, $15^{\circ} 44'$; moon's declination, $5^{\circ} 58'$; parallax, $57' 23''$; moon's southing, 2h. 21m.; age, 3 days; apogee, 16th August; perigee, 4th August; full moon, 22nd August; new moon, 7th August; eclipse of sun on day of full moon; eclipse of moon on day of new moon.

At 7 p.m. on 10th August air was calm and sky clear at Barbadoes. Wind rose gradually, and at midnight was blowing furiously from N., with thunder and lightning. At 3 a.m. abated, shifting to S.W. At 9 a.m. sky clear and calm again. Greatest force of wind at time of moon rising. Wind abated when moon crossed meridian. The hurricane reached St. Vincent on 11th, Porto Rico 12th, Matanzas 14th, Gulph of Mexico 15th, New Orleans 17th. Shows a marked correspondence with the hurricanes of the same month in 1793 and 1812.

CYCLE 9.

Hurricane at Jamaica, 1st August, 1813.—Lat. 18° N., long. 70° W.; sun's declination, $18^{\circ} 5'$; moon's declination, $0^{\circ} 20'$; parallax, $55' 29''$; moon's southing, 4h. 12m.; age, 5 days; apogee, 5th August; perigee, 20th August; full moon, 12th August; new moon, 26th August; eclipse of moon on day of full moon; eclipse of sun, 27th July.

Commenced 4 days after eclipse of the sun, with sun in zenith in Jamaica, and moon equatorial. Wind rose and fell with rising and setting of moon. Hurricane passed over Bahamas from S.E. to N.W. Traces felt on Coast of America on 9th, 13th, and 28th of the month. Dominica visited by another hurricane on 25th. Corresponding hurricanes on 7th and 16th of month in 1892 and 1851.

CYCLE 10.

Hurricane at Antigua in 1681.—Terrific hurricane; exact date not ascertainable. Collateral evidence leads to supposition that it occurred on 14th August, on which date there was a new moon, with sun and moon in zenith of island.

Hurricane at St. Thomas, 16th August, 1871.—Began on day of new moon. Corresponds with hurricanes of same month in 1795 and 1838.

CYCLE 11.

Hurricane at St. Bartholomew, 27th September, 1777.—Occurred on 24th day of moon. Howe's fleet encountered it between Capes Charles and Henlopen, and was in it 5 days, with the wind steadily at N.N.E.

Hurricane at St. Bartholomew, 18th September, 1815.

CYCLE 12.

Hurricane at Antigua and St. Thomas, 12th August, 1835.—Commenced at Antigua with sun in zenith of island, and 4 days after moon in apogee. Visited in succession Porto Rico, Hayti, Matanzas, Texas, thence trending W.

Hurricane at Tallahassee, Florida, 19th September, 1873.—Commenced on day of moon's apogee, and 2 days before new moon.

Hurricane at Jacquemels, Hayti, 28th September, 1873.—Very destructive to shipping and property on shore.

CYCLE 13.

Hurricane at Barbadoes, 21st October, 1817.—Sun's declination, $10^{\circ} 40'$; moon's declination, $8^{\circ} 41'$; moon's southing, 10h. 13m.; age, 11 days; apogee, 26th August; perigee, 11th August full moon, 25th August; new moon, 10th August.

Hurricane commenced on 21st, in 4 days before full moon, which nearly coincided with date of apogee. Wind rose and went down with the sun, rising again with the moon, and abating when the moon set. It began on 11th day of the lunation, which a study of the barometric

curves has shown to be especially menaced. This hurricane would appear to have subsequently reached Cumunas, thereby taking a contrary course to West India hurricanes in general, a peculiarity of which examples are rare.

Hurricane at Martinique, 25th August, 1855.—Occurred on eve of day of full moon, which, corresponding nearly with perigee, answers to hurricane of August, 1722.

CYCLE 14.

Hurricane at Cuba, 22nd September, 1818.—Occurred 4 days after an eclipse of the sun, and 1 day after moon's apogee, which coincided with 3rd quarter's corresponding hurricane in 1837.

Hurricane at Antigua, 10th October, 1780.—No astronomical data. One of the most terrific hurricanes on record. At Martinique, 10,000 persons are reported to have perished; and at St. Lucia 6,000. The hurricane started from Trinidad, visited Barbadoes, the centre passing over St. Lucia and St. Martin, and reached as far as Antigua.

Hurricane at St. Thomas, 2nd August, 1837.—Full moon and eclipse of moon on 16th August. Dates of new and full moon agreed with dates of apogee and perigee.

Hurricane at Cuba, 26th October, 1837.

CYCLE 15.

Hurricane at St. Thomas and St. Bartholomew, 21st September, 1819.—Moon in apogee, 15th September; new moon, 18th September; eclipse of sun, 19th September.

Hurricane at Barbadoes, 10th September, 1838.—Moon's age, 22 days; apogee, 19th September; perigee, 4th September; full moon, 18th September; new moon, 4th September; eclipse of sun on day of full moon; visited Gulph of Mexico; corresponding hurricane in September, 1819.

CYCLE 16.

Hurricane of 16th September, 1782.—This was the hurricane which was encountered in lat. 42° N., long. 51° W., by British homeward-bound fleet under Admiral Graves, and in which most of the prizes taken in Rodney's action with De Grasse perished.

Hurricane of 25th October, 1858.—A hurricane, accompanied by a terrific sea, was encountered on this date, 80 miles N.N.E. Bermuda, by French vessel of war, *Acheron*, Lieut.-Commander C. de Langle.

CYCLE 17.

Hurricane at Cumana, 16th September, 1802.—Lat. 10° N., long. 66° W.; sun's declination, $2^{\circ} 50'$; moon's declination, $24^{\circ} 54'$; parallax, $58' 3''$; moon's southing, 16 h. 34 m.; age, 20 days; perigee, 11th September; full moon, 11th September; new moon, 27th September; eclipse of moon on day of full moon; eclipse of sun, 28th September.

This hurricane was felt at Charleston at 2 p.m.; at Washington, at 5 p.m.; and at New York, at 10 p.m.

It is observed, that the 5th day after the apogee or perigee is often expressly menaced.

Hurricane at Turk's Island, 1st September, 1821.—Lat. 21° N., long. 73° W.; sun's declination, $8^{\circ} 17'$; moon's declination, 16° ; parallax, $54' 8''$; moon's southing, 3 h. 27 m.; age, 5 days; apogee, 1st September; perigee, 13th September; full moon, 11th September; new moon, 24th September; eclipse of sun on 27th August.

Felt simultaneously in Guadaloupe and on coast of America. Broke out same moment over Turk's Island, and moved away in direction of Charleston and New York.

CYCLE 18.

Hurricane at Bahamas, 10th July, 1823.—Lat. 25° , long. 63° W.; sun's declination, $21^{\circ} 23'$; moon's declination, $3^{\circ} 34'$; parallax, $59' 20''$; moon's southing, 17 h. 24 m.; age, 22 days; perigee, 9th July; full moon, 4th July; new moon, 18th July.

Hurricane at Mobile, 11th July, 1822.—Lat. 30° N.; long. 89° W.; sun's declination, $22^{\circ} 10'$; moon's declination, $10^{\circ} 36'$; parallax, $58' 31''$; moon's southing, 18 h. 20 m.; age, 23 days; perigee, 16th July; full moon, 4th July; new moon, 18th July.

Data for many important hurricanes of this cycle have not been ascertained. Those of 10th and 11th July appear to recur regularly about 21st day of lunation.

CYCLE 19.

Hurricane at Martinique on 13th August, 1766, called the "Great Hurricane," occurred on the 9th day of the moon. Other data not obtained.

Hurricane at Jamaica, 6th September, 1804.—Extended to Gulf of Mexico.

Hurricane of December, 1804.—Commenced at Guadaloupe on 3rd December, and was felt at Massachusetts on 9th of same month.

Heads of a Table, showing the dates of recorded hurricanes in the West Indies and Bermudas, arranged by lunar cycles of 19 years, commencing on 1st January, 1501, and by solar months.

CYCLE 1.—Years, A.D., 1501-20-39-58-77-96, 1615-34-53-72-91, 1710-29-48-67-86, 1805-24-43-62.

July.—13th July, 1653; 27th, 29th July, 1805; 26th July, 1824.

September.—1st September, 1653; 2nd, 10th September, 1786; 7th, 8th September, 1824.

October.—1st October, 1653; 5th, 10th October, 1786.

Frequency during the cycle, 18.

CYCLE 2.—Years, A.D., 1502-21-40-59-78-97, 1616-35-54-73-92, 1711-30-49-68-87, 1806-25-36-63.

July.—2nd July, 1502; 30th July, 1787; 25th, 26th July, 1825.

August.—12th August, 1768; 3rd, 15th, 23rd, 29th August, 1787; 30th August, 1806.

September.—2nd, 19th, 23rd September, 1787; 9th, 24th, 27th September, 1806.

October.—15th, 20th October, 1768; 5th, 27th October, 1806; 1st October, 1825.

Frequency during the cycle, 24.

CYCLE 3.—Years, A.D., 1503-22-41-60-79-98; 1617-36-55-74-93; 1712-31-50-69-88; 1807-26-37-64.

July.—22nd July, 1788; 25th, 28th July, 1807.

August.—10th August, 1674; 30th August, 1769; 14th, 16th, and 10th, 29th August, 1788; 18th August, 1826.

Frequency, 21, 17.

CYCLE 4.—Years, A.D., 1504, 1865.

March.—7th March, 1751.

June.—6th June, 1770.

July.—30th July, 1827.

August.—13th August, 1694; 10th August, 1751; 17th, 28th August, 1827.

September.—2nd, 15th September, 1751; 7th September, 1827; 11th, 21st September, 1846; 7th September, 1865.

October.—19th October, 1504; 17th October, 1694; one, no date given, 1751; 11th October, 1827; 6th October, 1846.

Frequency during the cycle, 18, 15.

CYCLE 5.—Years, A.D., 1505, 1866.

February.—21st February, 1847.

June.—1733, date not given.

July.—27th July, 1809.

August.—18th, 14th, 29th August, 1714 ; one in 1771 ; 1st, 3rd August, 1809.

September.—One in 1752 ; 2nd September, 1809.

October.—2nd October, 1685 ; 18th, 18th October, 1809 ; 10th October, 1847.

Frequency, 16, 14.

CYCLE 6.—Years, A.D., 1506, 1867.

June.—21st June, 1791.

July.—24th July, 1829.

August.—16th, 17th, 18th, 31st August, 1772 ; 12th, 28th August, 1810 ; 22nd August, 1848.

September.—1st September, 1734 ; 15th September, 1753 ; 1st, 4th September, 1772 ; 27th September, 1791 ; 28th September, 1810 ; 3rd, 19th September, 1848.

October.—25th, 26th October, 1810 ; 29th October, 1867.

November.—22nd November, 1772.

December.—16th December, 1848.

Frequency, 19, 15.

CYCLE 7.—Years, A.D., 1507, 1868.

February.—24th February, 1830.

March.—27th March, 1849.

July.—1773 ; 15th July, 1792.

August.—1773 ; 1st, 6th August, 1792 ; 7th, 11th, 18th, 19th, 24th August, 1880.

September.—1754 ; 10th September, 1792 ; 29th September, 1830.

October.—1526 ; 29th October, 1792.

December.—3rd, 6th December, 1830.

Frequency, 21, 20.

CYCLE 8.—Years, A.D., 1508, 1869.

January.—18th, 15th January, 1831.

February.—1508, no date.

March.—30th March, 1850.

April.—27th April, 1831.

June.—10th, 23rd, 27th June, 1821.

July.—14th, 16th July, 1850.

August.—12th, 27th, 28th August, 1793 ; 14th, 19th August, 1812 ; 10th, 17th August, 1831 ; 21st August, 1850.

September.—6th September, 1774 ; 2nd September, 1850.

October.—2nd October, 1774 ; 12th, 14th October, 1812 ; 14th, 18th October, 1850 ; also one in 1660, month not specified.

Frequency, 26, 19.

CYCLE 9.—Years, A.D., 1509, 1870.

June.—3rd, 6th June, 1832.

July.—July, 1509 ; 30th July, 1775 ; 20th, 22nd, 23rd, 28th, 31st July, 1813 ; 26th July, 1832 ; 10th July, 1851.

August.—25th, 27th August, 1775 ; 27th, 28th August, 1794 ; 1st, 5th, 9th, 25th August, 1813 ; 7th, 14th August, 1832 ; 16th, 28th August, 1851.

September.—19th September, 1623 ; 14th September, 1680 ; September, 1718 ; 9th September, 1727 ; 12th September, 1756 ; 14th September, 1775 ; 16th, 19th, 20th September, 1832.

November.—19th November, 1813 ; also, 3 in 1642 ; no dates given.
Frequency, 35, 33.

CYCLE 10.—Years, A.D., 1510, 1871.

January.—12th January, 1852.

July.—25th July, 1833.

August, 1681 ; 29th August, 1757 ; 10th, 18th August, 1795 ; 14th August, 1833 ; 16th, 21st August, 1871.

September.—4th, 5th, 6th September, 1776 ; 20th September, 1833 ; 22nd, 26th September, 1852.

October.—16th, 14th October, 1833 ; 9th October, 1852.

One in 1681, one in 1700, one in 1738, and another in 1747 ; dates not given.

Frequency, 18, 14.

CYCLE 11.—Years, A.D., 1511, 1872.

August.—23rd August, 1758 ; 9th, 31st August, 1815 ; 30th August, 1853.

September.—9th September, 1734 ; 1st, 18th, 20th, 25th, 29th September, 1815 ; 20th September, 1834 ; 11th, 27th, 28th September, 1853.

October.—3rd, 4th October, 1796 ; 20th, 21st October, 1834 ; 18th October, 1815.

November.—2nd November, 1796.

One in 1720 ; date unrecorded.

Frequency, 23, 19.

CYCLE 12.—Years, A.D., 1512, 1873.

April.—28th April, 1835.

July.—26th July, 1835.

August.—12th, 16th August, 1835 ; 27th August, 1873.

September.—September, 1759 ; 15th September, 1816 ; 18th September, 1835 ; 19th September, 1873.

October.—22nd, 23rd October, 1664 ; 28th October, 1778 ; 16th October, 1816 ; 21st October, 1854.

November.—10th November, 1885.

One in 1702, and another in 1740 ; dates unrecorded.

Frequency, 18, 17.

CYCLE 13.—Years, A.D., 1513, 1874.

August.—28th, 31st August, 1722 ; 25th, 26th August, 1855.

September.—15th September, 1817.

October.—1665 ; 21st, 23rd October, 1817.

November.—30th November, 1836.

December.—21st December, 1836.

One of no date, 1779.

Frequency, 11, 9.

CYCLE 14.—Years, 1514, 1875.

May.—4th May, 1761.

June.—1st June, 1761.

July.—26th July, 1780 ; 9th, 26th, 31st July, 1837.

August.—25th August, 1780 ; 4th, 5th August, 1566 ; 28th August, 1818 ; 2nd, 4th, 6th, 12th, 18th, 21st, 23rd, 31st August, 1837.

September.—3rd, 27th September, 1837.

October.—3rd, 10th, 12th, 16th, 18th, 23rd October, 1780 ; 10th, 12th, 19th, 20th, 21st, 22nd, 25th October, 1818 ; 1st, 3rd, 10th, 16th October, 1837.

One in 1742, and another in 1799 ; no dates.

Frequency, 39.

CYCLE 15.—Years, A.D., 1515, 1876.

March.—15th March, 1781.

August.—10th August, 1591 ; 19th August, 1667 ; 1st, 10th August, 1881 ; 25th August, 1819.

September.—5th September, 1781 ; 21st, 22nd September, 1819 ; 10th September, 1838.

October.—13th, 15th October, 1819.

November.—2nd November, 1800 ; 1st, 26th, 28th November, 1838.

December.—9th December, 1762.

Frequency, 15.

CYCLE 16.—Years, A.D., 1516, 1877.

April.—13th April, 1782.

June.—9th June, 1839.

July.—25th, 31st July, 1782 ; 22nd July, 1801.

August.—1st August, 1782.

September.—16th September, 1782 ; 8th September, 1839.

October.—25th October, 1858 ; 20th October, 1744.

November.—1744 ; 5th, 18th, 17th November, 1837.

Frequency, 13.

CYCLE 17.—Years, A.D., 1517, 1878.

February.—21st, 23rd February, 1802.

June.—23rd June, 1840.

September.—16th September, 1802 ; 1st, 9th, 23rd September, 1821 ; 16th September, 1840.

October.—22nd October, 1722.

Frequency, 13.

CYCLE 18.—Years, A.D., 1518, 1879.

January, 1746.

March.—8th March, 1784 ; 11th March, 1822.

July.—31st July, 1765 ; 10th, 30th July, 1784 ; 10th July, 1803 ; 11th July, 1822.

August.—18th August, 1674 ; 29th August, 1803.

September.—1765 ; 3rd, 9th September, 1803 ; 3rd, 6th, 6th, 21st, 28th September, 1841.

October.—7th October, 1674.

November.—13th, 14th November, 1765 ; 28th November, 1841.

December.—18th December, 1822.

Frequency, 17.

CYCLE 19.—Years, A.D., 1519, 1880.

March.—6th, 7th March, 1718.

July.—6th, 25th July, 1785 ; 12th July, 1842.

August.—13th, 16th August, 1766 ; 25th, 27th, 31st August, 1785 ; 29th August, 1804 ; 30th August, 1842.

September.—21st September, 1747 ; 11th, 13th, 15th, 21st September, 1766 ; 22nd, 24th, 27th September, 1785 ; 3rd, 9th September, 1804 ; 4th, 9th September, 1842.

October.—24th October, 1747 ; 6th, 22nd October, 1766 ; 2nd, 10th, 24th, 29th October, 1842.

November.—3rd November, 1842.

Frequency, 34.

A few words will suffice to explain the purport and use of the above table, which it perhaps is superfluous to say is merely intended as an adjunct to the precautions now generally recognised.

Suppose that it is desired to ascertain the probabilities in favour of a hurricane occurring in the West Indies during the months of August and September of the current year. We find that the year 1876 belongs to Cycle 15 of the above classification. Also that the frequency of hurri-

canes during the years of this cycle—that is to say, years when the lunar conditions were the same as those of the present year—was rather below the average.

But we find, too, that during four of these years hurricanes occurred in the month of August, about the 1st, 10th, and 19th, 25th of the month; and that in three different years of the same cycle hurricanes occurred between 5th and 22nd September. Reference to the Prefatory Notes will show the astronomical conditions under which these hurricanes occurred, and the course of each, so far as these have been ascertained.

Any warnings of atmospheric disturbances about these dates should, on the above grounds, be received with more than ordinary suspicion; and this particularly applies to the month of September, in which reference to the almanac shows that eclipses of the moon and sun respectively falling on the days of full and new moons, follows very closely on the dates of the moon's apogee and perigee.

H. M. CHICHESTER.

BARRISTERS' FEES.

IN a sensible and temperate speech, Mr. Norwood, the senior member for Hull, brought before the House of Commons the subject of Barristers' Fees. For our present purpose, it is not necessary to recapitulate his statement, nor to reproduce his well arranged facts, it is sufficient to remind our readers that theoretically a barrister never can claim payment for his services, and is not in any sense a paid agent. This, though the theory, and legally the fact, is now-a-days practically reduced to fiction, and is often the only fanciful feature in a law suit. As a matter of fact those who go to law often find in despite of the above theory, that exceedingly large sums are paid for the assistance of distinguished counsel, and that the said distinguished counsel often do nothing for it.

In the course of the debate on the subject, Mr. C. Lewis, who is not a barrister, begged the House to remember that the leading question before them was this—whether a professional man of high class ought to be allowed to retain, say, a fee of 100 guineas received by him for a given service, which he failed to perform. Not one speaker on either side of the House who had opposed the Bill had ventured to take up the controversy on that particular issue or to point out what remedy an unfortunate client could have who had lost his money under such circumstances. The next question was this, What was there in the origin, the his-

tory, or the nature of the service rendered by a person called a barrister-at-law which exempted him from the operation of the ordinary principles of morality and fair dealing? What the supporters of the Bill complained of was the so-called etiquette of the profession, which led men to think it consistent with honourable principles to retain money received by them for services which, from some cause or other, they fail to perform. The engagement between a barrister and his client was now substantially a bargain. After a brief marked 20 or 30 guineas was delivered to a barrister, either on circuit, in the Court of Chancery, or in the Common Law Courts, it is a common thing for his clerk to come to the solicitor and say, "Counsel on the other side have had 20 guineas more than we have, and we expect an increase." In the correspondence he read last year, the clerk of a distinguished counsel on the very evening before a particular case was to be heard wrote to the solicitor concerned, stating that the fees on the other side were so much more than his, and insisting on getting an increase before the case was opened. It was said the Bill would destroy the Bar; but the House had heard language of that kind before. Every interest which they attempted to reform used it. The Bill would destroy the Bar. By what? By making counsel return money which they had not earned? By rendering them responsible for so mismanaging cases as to involve their clients in disgrace and disaster? What! that destroy or bring dishonour on the Bar? Why, a man of honour felt bound to perform his contract if he could, or make amends if he could not, and to compensate his neighbour for any injury which through positive neglect he might have done him; yet they were told that the honourable profession of the Bar would be disgraced by the liability to do what was right, for that was all which the Bill sought to impose on them. There was another aspect of the case, one which had been overlooked. A great evil in connexion with the Bar was monopoly. Juniors, for the most part, had little or no chance of getting on, and nothing fostered that state of things more than the system which enabled solicitors—imprudently it might be—to shovel briefs into the hands of a few men, and which enabled those men to receive them without feeling guilty of injustice. Now if anything would tend to open up a career to young barristers, it would be a measure like the present, which would enforce the application of the ordinary rules of morality and at the same time assist in the distribution of work at the Bar. On behalf of unfortunate suitors who had over and over again suffered from dereliction of duty on the part of barristers, he asked the House seriously whether they would not at least open the door for a consideration of the question by allowing the Bill to be read a second time and to go before a Committee.

If Mr. C. Lewis is right, it appears that whatever be the theory, the

practice is not unknown of barristers through their clerks, chaffering with all eagerness for fees *before* they undertake work, and then having obtained payment in advance, not doing the work at all. Even those speakers who opposed Mr. Norwood, could not but admit that there are barristers, and those even more or less eminent by whom this chaffering is sanctioned or winked at, and subsequent neglect practised. But happily they like bad shipowners form a minority. One eminent member of the Bar exclaimed that "the Bill would destroy the interests of the profession for ten unrighteous members of it." This is exactly what shipowners have been urging as regards themselves, when a great reformer wished to tar all owners with the same brush of official surveillance and certification, and yet many of the lawyers supported the reformer in his efforts to bring the shipowner into a state of bondage. The barrister, however, who may have found himself unable to discern why the whole of our Mercantile Marine should not be subjected to Government interference, and the shipowners business seriously threatened, in order to bring to justice a minority of black sheep, will perhaps see the force of the argument now that his own profession is in similar danger of being destroyed for the sake of a minority of unrighteous lawyers.

It is of course absurd for counsel to take their stand for immunity on the fact that they have no legal power to recover fees so long as that fact is coupled with the more important one that they never take a brief until the fees are paid in advance, and that then they often fail to do the work for which they are paid.

While a barrister (unlike a master mariner) is held wholly irresponsible for errors of judgment, there is no reason why he any more than a physician should receive pre-payment on account of services he may or may not render. Mr. Norwood has done good service in bringing the subject forward; but his Bill, which was rejected, went too far, as it sought to make the barrister responsible for errors of judgment. The honorable member may meet with better success next time, if he omits his first impolitic and practically impossible proposal, and insists on the second, which is founded on common sense, justice and commercial morality. He will undoubtedly have the laity with him.

Yet another of the scant staff of Naval Surveyors has been taken from us, in Navigating Sub-Lieutenant Charles George, R.N., who died of cholera after a few hours illness at Akyab, on the Orissa coast. Mr. George was attached to the Indian Marine Survey, under Commander A. D. Taylor, late Indian Navy, and, although a young man, was a most promising officer and able surveyor.

LOAN EXHIBITION OF SCIENTIFIC APPARATUS, SOUTH KENSINGTON.

THIS exhibition, which was opened on 18th May by Her Majesty the Queen, is likely to prove a real success. Generally speaking when men of science cater for the public they fail to some extent in satisfying the public taste, because their habits of thought and practice are by no means in accordance with popular ideas. In the present instance, however, the distinguished savans, whose names appear on the list of the committee, do not seem to have put forward their own specialities to the detriment of the Exhibition as a whole, and as one intended to interest and instruct the general public. The objects of this Loan Collection are intended to be chiefly of an educational character, as showing the gradual development of the appliances used for scientific investigation, and for the practical application of scientific discoveries from the earliest times until now. The historic associations connected with the earlier forms of apparatus cannot fail also to be of very considerable interest. The articles displayed are not confined to British apparatus alone, foreigners and foreign work being well represented; and the Exhibition is thus made very comprehensive. In order to enable the public to obtain the fullest information in regard to the various objects exhibited, a detailed catalogue has been prepared together with a handbook from which the whole scope of the exhibition may be accurately gathered; in addition to which daily conferences have been held, and leading men of science and practical ability have explained the uses of the different instruments. We trust that the results of these conferences will be published *in extenso*. There are various objects connected with maritime matters to which we hope to be able to refer in our next number. In the meantime we can only say that the Lords of the Committee of Council on Education have done wisely in setting an exhibition on foot which without a doubt will be most instructive and valuable, and will tend to the advancement of science and the industrial progress of this country.

AGRICULTURAL AND INDUSTRIAL EXHIBITION IN PARIS.—BOARD OF TRADE, April 20, 1876.—The Board of Trade have received from the Secretary of State for Foreign Affairs a copy of a decree of the French Government, dated the 4th inst., announcing that a Universal Exhibition of Agricultural and Industrial Products, to which all nations are to be admitted, will be opened at Paris on the 1st May, 1878, and closed on the 31st October following.

CORRESPONDENCE.

DISCIPLINE AFLOAT.

To the Editor of the "Nautical Magazine."

SIR,—With all the legislation that is now going on about unseaworthy ships and seamen, it appears to me that one of the principal causes of disasters at sea is entirely overlooked. I allude to the gradual decrease of discipline on board merchant vessels and the cause of it. I do not think I take a one-sided view of the matter when I say that masters of ships have not sufficient power in their hands to control refractory and subordinate characters.

Thanks to the beneficial influence that Trades' Unions and similar societies have had upon the working-classes, the British mariner is in no way behind the times, and you must know, Sir, that a seaman may, without committing any overt act under the present regime, almost completely set his officers at defiance, and although it may be very well for workmen on shore, it is hardly conducive to the comfort of any ship. I take one case which I read a few days since in the *Standard*, but cannot give the date, having mislaid the paper.

A man refused duty on board a sailing ship, and was put in irons by the master on arrival in London. He was taken before a magistrate, charged with a savage assault on the mate—and was granted by the magistrate a summons against the *master for putting him in irons*.

I have not seen the result of the summons, but conclude as usual that the master will be fined, and perhaps threatened with imprisonment.

Now, Sir, in such a case what is to be done. A man refuses duty, and as merchant vessels do not usually carry more hands than they have work for, is this man to saunter about the deck with his hands in his pockets until arrival in port, when he would probably get four weeks' imprisonment, a most inadequate punishment? or, does it not seem better to take coercive measures at once, and, preventing the spread of mischief, bring the offender to his bearings as speedily as possible? Seamen on a voyage do not care two straws for a stoppage of a day or two's pay, and have a most profound contempt for an official log-book, whilst a day or two's confinement on bread and water would alter the tune of many a refractory character. As things now stand, it must seem to every shipmaster that all efforts tend to give the seaman every advantage, and make the master and officers the universal scape-goats.

Things are very little better even in large steamship companies. A man in his watch on deck takes it as a matter of course that he must go

to sleep in the fore-castle if he can possibly evade detection, or about the funnel casing, or some place where it takes some minutes to find him, and, if sail is required to be set or trimmed, the officer of the watch, unable to leave the bridge, may be morally certain that his watch, half-awake, will, if possible, with the utmost indifference, carry away ropes with a steam-winch, and make a day's work to repair them; then if spoken to at all sharply, will consider themselves aggrieved, and if made to replace the damage done—say, in their watch below—would, in all probability, cause a row, that would make a difficulty in getting a crew for the next voyage.

I think I may say, that it is a very rare occurrence for sailors ever to lose their afternoon watch below, in large ocean-going steamers, and, as a rule, all work is finished by 4.30 p.m. Anything done after that time is considered an innovation by Jack, who thinks that until wash-deck time in the morning he ought not to be troubled, and behaves accordingly. In your number for March, Mr. Editor, you give the respective claims of Tailor Bill and Mercantile Jack to a State pension. Tailor Bill has, in all probability, the right to be called a hard-working member of the community; Mercantile Jack, as a rule, is a lazy, loafing, vagabond, neither sailor nor shoreman.

Since I wrote the first part of this letter, I find the result of the case I quoted above. The ship *Locksley Hall*—a seaman named Allan; and as I premised, the captain sentenced to twenty-one days' imprisonment for illegally confining a man in irons. Will you give us your views, Mr. Editor, on the subject.* A man absolutely refuses to work for some reason not given, and because the master of the ship makes an example of him, and very probably stops the spread of mischief, he is sentenced to twenty-one days' imprisonment. Had the ringleader in the *Jefferson Borden* affair been secured promptly, things would not have happened as they did; and, with the many cases of disturbances on board ship lately, it appears to me that shipmasters' hands should be strengthened instead of being at the mercy of a philanthropic magistrate, who proves himself totally unable to understand the only way of dealing with a mutinous vagabond. I have no doubt but that if you give this letter publicity, these views will be readily endorsed by all officers of the Mercantile Marine; for, whilst a fine of two days' pay punishes a man for sleeping on the look-out, that same negligence may probably cause the master or officer of the watch to be indicted for manslaughter; and whilst legislation on the subject of merchant vessels is going on, let us have power in our hands to convince Jack that he is not, as he now fondly imagines himself, master of the situation. It

* See our leading article in the present number.—Ed.

would not hurt the good men, but would have a most salutary effect on, at least, one-half of the maritime community.

I am, Sir,

Your obedient servant,

W. C. C.

Southampton, April 27th, 1876.

MERCHANT SHIPPING LEGISLATION.

To the Editor of the "Nautical Magazine."

SIR,—I have to thank you for the flattering notice, throughout, you have been pleased to take of my "History of Merchant Shipping;" but as you seem to think that I have since its publication retrograded as an advocate of "unfettered commerce," I am anxious to place on record my views of the Merchant Shipping Bill, now under discussion in Parliament. For that reason, would you do me the favour to insert in the *Nautical Magazine* the following letter which I addressed the other day to an old friend largely connected with maritime commerce, and which he has had printed and circulated:—

"I have not much to add to my letter to you about the Merchant Shipping Bill which found a place in *The Times* of the 20th March.

"It is more pleasant to coincide with old friends than to differ from them; but I cannot view the question of Merchant Shipping Legislation now under consideration in the light many of them do. Away from the turmoil of politics, where I can calmly consider all that is said, and compare it with my own experience, the more I study this question the more am I convinced that the Government Bill, if it becomes law, will prove as pernicious in practice as it is unsound in principle.

"Indeed, reflection only makes me feel that while increase of patronage is an important object in view, the effect of that increase will not be to save life; nor will the Bill promote the prosperity of British shipping. On the contrary, it snubs the genius, limits the talents, curtails the energy, and depresses the spirits of those men who have made us what we are as a maritime nation: 'the tendency of official surveillance,' being, as Sir Charles Adderley truly states, but with strange inconsistency, 'to paralyse improvement.' Moreover, the mode proposed to carry out so sound a maxim is in itself sufficient to convince me that the Bill has not been either well or wisely considered by its authors, while the fact that though containing only 32 clauses no less than 215 amendments to the measure have been formally submitted, confirms the strong opinions I ventured to express to you against it.

"Consider with me for one moment the professed object of this Bill.

Its chief feature is to exterminate or improve a certain but limited number of vessels which are unseaworthy.

"Sir Charles Adderley proposes to do so by increasing the extent of the 'official surveillance' he condemns—that is to say, he seeks the right to inspect *every ship* by officers of the Board of Trade, many of whom, by the way, Mr. Shaw Lefevre describes as 'dishonest, incapable, ignorant, and negligent,' and to extend a system for which the same authority has 'a profound distrust,' though Mr. Shaw Lefevre, with equally strange inconsistency, supports the Bill.

"But, let me ask, while such a system would, under any circumstances, seriously retard the progress of maritime commerce, would it effect the object in view? I doubt it. Searching every ship, while being an intolerable nuisance, especially to the owners of good and well found vessels, would be very much like searching for the needle in the bundle of hay; for you know that bad ships are as a rule like painted sepulchres, fair to look at, but rotten within. Consequently the right to inspect all ships unless we open them, would be practically worthless.

"For these reasons Mr. Plimsoll's plan, which is much more simple and economical, and is likely to be far more prompt and effective if adopted, ought to receive still further consideration from the Legislature, more especially as it appears to have been misunderstood when under discussion. Unquestionably it is sound in principle.

"He says that no vessels should be allowed to proceed to sea unless they are seaworthy. Throughout the whole course of the discussions in and out of Parliament, no one has ventured to question this principle. The owners of good ships can have no possible objections to it, while the owners of inferior craft dare not openly object to the principle, whatever they may do in an indirect and underhand way. Mr. Plimsoll, as I understand him, is ready to exempt small craft under a certain tonnage, to admit the seaworthiness of all vessels which can produce a certificate of classification, or which carry passengers or mails or Government stores, or are adapted to do so. He thus limits to a comparatively small number the vessels to be surveyed; and I doubt not he would be prepared to limit the number still further if it can be shown that such may be done with safety to the public.

"He does not now ask the right to survey all vessels, but wisely limits the enquiry to those about which their owners do not afford the public the means of knowing anything; nor does he require that such vessels should be classified, for that would be an attempt to regulate by legislation the standard of merit. He merely says, 'let those unknown and doubtful vessels produce a certificate of seaworthiness from some impartial and competent association in whom the public has confidence, before they proceed to sea with human lives on board.'

"He is right; and on this point the public goes with him. The public don't care for legislation so long as they can by other means obtain the security they desire. They know that good ships as well as bad ships go to the bottom through the proverbial perils of the sea; and so long as they know that all reasonable and available means are used to avoid those dangers, they will be satisfied.

"Now if a plan is proposed whereby this can be accomplished without Government interference, which means increased taxation, you may rest assured that the public would adopt it. This is just what the adoption of Mr. Plimsoll's principle would effect, and having the most thorough confidence in the wisdom of the people, I cannot but feel that when Mr. D. J. Jenkins' motion, which perhaps more clearly represents the object in view and the means of securing it than the one proposed by Mr. Plimsoll himself, is thoroughly and fairly discussed, it will be carried.

"I hope the Government will not attempt to evade the further discussion of an amendment so important. But if carried, the Bill would require to be re-modelled, for in that case there would be no necessity for making the fresh appointments it contemplates, or increasing in any way that 'official surveillance' which Sir Charles Adderley denounces. On the contrary he might then, while lessening taxation reduce the existing staff of Board of Trade Surveyors, and thus relieve all good ship-owners from any unnecessary interference with their business.

"Of course the increase of those officials will not be used by the Government as an argument in favour of its scheme, but that, practically, will be the chief influence against which those members who coincide with my views will have to contend.

"Government will argue that without the survey of its own officials there can be no guarantee on which the public can depend as to the seaworthiness of a vessel. But that portion of the public who have by far the largest interest at stake, viz., the underwriters, have as little faith as Mr. Shaw Lefevre seems to have in Government Inspection. They depend *entirely* on the certificates of survey issued by Lloyd's Register. If they did not find the ship offered for insurance in the records of that association, or some other they knew, or if they did not know her owners, they would have nothing to say to her. With a shrug of the shoulders or shake of the head they would hand back the slip to the broker, even if told that she had been surveyed by the Board of Trade. It might be wrong on their part to do so, but they are shrewd men and know their business. Now allow me to ask if such men trust all they possess to vessels thus classed, is it not absurd to suppose that the general public, whose interest is comparatively small, would not be satisfied with a certificate of seaworthiness from Lloyd's Register, or similar associations?

“ These associations are not under Government control in any way, nor need they be so, should the Legislature require that no vessel shall proceed to sea without their certificate of seaworthiness. There would be no necessity to confer upon them statutory powers. Indeed the Committee of Lloyd’s Register without any such power or any interference with the general business of the association, now carry out the provisions of the Act of Parliament which requires all anchors and chains to be tested ; and having a well-trained and competent staff of surveyors at every port in the kingdom, they could easily undertake, if required to do so, that no vessel in future should proceed to sea in an unseaworthy state.

“ *That is all the public requires.* Once adopt the principle, which I have endeavoured to show can be easily carried into practice, and every really unseaworthy vessel will disappear within twelve months from the passing of the Act. When the law is in force you may rest assured that the owners of all such vessels will, with astonishing rapidity, either get quit of them, or make them seaworthy. These are the only vessels with which the public cares to interfere. With all others they would much prefer that their owners were left to exercise their own judgment unfettered.

“ But such a law should in no way relieve any shipowner from the responsibility he owes to the public should it appear that his vessel was not ‘ tight, staunch and strong, and in every way fitted for the voyage,’ any more than classification does not relieve him from his responsibility to the underwriters should neglect of duty be proved.

“ While, however, I agree with Mr. Plimsoll on this all-important point, I cannot agree with him in most of his other suggestions, such as load-lines, consular surveys of our ships abroad, danger and distress signals of extraordinary power, expense and complication, which he recommends to be carried in ‘ every ship ;’ nor on other matters of comparative detail, as their application, while not effecting the object he has in view, would seriously retard the progress of our maritime commerce.

“ Load-lines, for instance, must ever be the mere theory of the expert. It would be impossible to make them equitably applicable in all cases ; and their adoption would lower the standard of merit, and induce ship-owners to build down to an official and imperfect rule instead of constructing the safest and strongest form of vessel, indicated by the progress of science.

“ Moreover, if our shipowners are to continue to compete successfully with the vessels of other nations, we must not destroy, by official interference, to an extent greater than we do with other classes of the community that spirit of individual pride and rivalry which has made us what we are, the first of maritime nations.

"For these reasons I am opposed to all Government surveys, which while tending to relieve shipowners from their duties to the public, weaken or destroy individual energy."

In the above letter there does not appear to me to be anything opposed to the views I have long advocated.

Whatever the public may think, those of your readers who are practically conversant with the subject will see that there is a vast difference between "classification," and the certificate of the seaworthiness of a ship. The former is, and should ever be, a voluntary act on the part of the shipowner. It measures the standard of merit with which the Legislature should in no way interfere, as that ought to be left to the individuals interested. But the latter, applying as it does, only to the case of vessels not classed, or about which the public know nothing, should be compulsory, as we have a right to know something of the character of vessels in which human life is entrusted.

It is surely no interference with 'unfettered commerce' to require that no man shall send a ship to sea which is unseaworthy. On the contrary, any shipowner who violates this acknowledged principle of humanity (and we know that there are many who do so for their own selfish purposes) should be prevented, as far as practicable, from placing in jeopardy, for his own individual gains, the lives of his more ignorant and less fortunate fellow men. The Bill now under consideration deals alike with good and bad shipowners, which is unjust; and while an unjustifiable and unnecessary interference with commerce, it will not as effectually check the misdeeds of bad men as the plan I suggest, which would teach good men, as the law ought to do, to manage their business in such a manner as they consider most conducive to their own interests.

Nor do my objections to the Bill end here. It subjects British shipowners to burdens and harassing duties which their foreign competitors are not called upon to bear; and Government finding itself on the horns of a dilemma, now changes its front and attempts to legislate for foreign vessels as well as our own. That portion of the law can however only be made applicable to such of those vessels which frequent our ports; it cannot touch foreign ships competing with us in the indirect trade. But foreign nations may not approve of our interference with their affairs, even to the limited extent proposed, and if so, our shipowners will be placed in a false position. The whole Bill is however opposed to the principles of "unfettered commerce," and that is the reason why I object to it.

W. S. LINDSAY.

Shepperton, May 9th, 1876.

RULE OF THE ROAD AT SEA.

To the Editor of the "Nautical Magazine."

DEAR SIR,—In looking over the *Nautical Magazine* for this month, and under the heading "Rule of the Road at Sea," in Art. 12, I see a proposition made that sailing ships (*when in fog, mist, or falling snow*) are to give three blasts of the fog-horn with the wind abaft the beam. I mean to say should this ever come in force that at times a collision would be inevitable.

For instance, a ship with the wind abaft her *port beam* (say one or two points) and another ship with the wind abaft her *starboard beam* (one or two points) each hearing the sound of a horn (as before mentioned) upon their weather sides, both ships would be crossing, although it would be impossible for the officer of either ship to know which direction the other was going, and by keeping their respective courses one must cross the other's track or a collision would occur.

But if the one and two blasts were given, as proposed, they would know at once that they were crossing each other, and undoubtedly would act to avoid collision. In my opinion, the three blasts should not be made, as one denotes starboard-tack, and two port-tack, which is all that is necessary.

I am, yours truly,

R. H. BLACKLIN,

Commander of S.S. *Torrington*.

2, St. Stephen's Road, Shepherd's Bush, W.

May 11th, 1876.

DIRECT-ACTING SPRING SAFETY-VALVES.

To the Editor of the "Nautical Magazine."

SIR,—It would be exceedingly interesting to me as well as to many of your readers, if the question raised by "Molecular Vortex" regarding the liberating power of dead-weighted safety-valves, as compared with spring-loaded valves was settled in such a way as would enable engineers and shipowners to estimate from actual experiment the difference in liberating power of the two methods of loading. That way of settling the question is all the more desirable, considering that many of our most eminent engineering authorities are disposed to differ in their opinion from "Molecular Vortex," and have not sufficient *credulity* to accept his statement, which I quote as altogether true. "The liberating power of the direct-acting dead-weight on an ordinary valve is considerably greater than any system of spring-loading whatever, on an ordinary valve."

By ordinary valves I presume is meant valves without compensation and enclosed in the usual way.

Now, Mr. Editor, seeing your contributor "Molecular Vortex" is evidently desirous of distinguishing himself, I trust he will throw no obstacle in the way to the following suggestion. I will make an ordinary spring-valve to compete with the best dead-weighted valve he can make, and the result of the test will show, whether or not, he has mastered to the fullest extent those principles of safety-valve construction which should logically be held by those who undertake publicly to challenge the opinions of distinguished persons.

Yours respectfully,

CLYDESDALE.

Glasgow, April 22, 1876.

RAPER'S NAVIGATION.

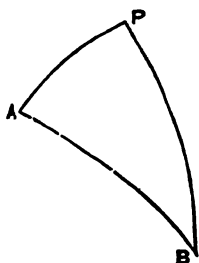
LEUT. RAPER, R.N., in the preface to his "Practice of Navigation," promised to complete the work in a second volume on the Theory of Navigation. Unfortunately, his intentions were not realised, and thus those who use the practical rules in the best of the existing works on navigation, are unable to study the investigations on which they are founded. It is therefore proposed to give, in the *Nautical Magazine*, a few papers on the proofs of those rules which are found in Raper, and not in the works of Riddle, Jeans, or Merrifield and Evers.

The articles will be numbered with the numbers in the 10th edition of Raper's Navigation, and will, in general, be taken in order. The first rule that requires proof occurs in

337.

GREAT CIRCLE SAILING.

Let AB be the arc of a great circle passing through the two places, A and B , P the pole, PA and PB the meridians of A and B ; then PA , PB are the co-latitudes of A and B , APB is their difference of longitude, AB is the required distance, and PAB or PBA is the initial course, according as A or B is the point of departure.



This problem is solved by inspection, by means of Tables 2 and 5. Table 2 is the ordinary traverse table; Table 5 is called the Spherical Traverse Table, and is composed of two parts, M and N ; M is 100

times the product of the secants, and N is 100 times the product of the tangents of any two angles.

FOR THE DISTANCE.

In the spherical triangle A B P

$$\cos. P = \frac{\cos. AB - \cos. AP, \cos. BP}{\sin. AP, \sin. BP} = \frac{\cos. AB}{\sin. AP, \sin. BP} - \frac{\cos. AP, \cos. BP}{\sin. AP, \sin. BP}$$

$$= \cos. AB, \operatorname{cosec}. AP, \operatorname{cosec}. BP - \cot. AP, \cot. BP$$

$$\cos. AB, \operatorname{cosec}. AP, \operatorname{cosec}. BP = \cot. AP, \cot. BP + \cos. P$$

$$\cos. AB = \frac{\cot. AP, \cot. BP + \cos. P}{\operatorname{cosec}. AP, \operatorname{cosec}. BP}$$

$$\begin{aligned} \cos. \text{Dist.} &= \frac{\tan. (\text{Lat. A}), \tan. (\text{Lat. B}) + \cos. (\text{D Long.})}{\sec. (\text{Lat. A}), \sec. (\text{Lat. B})} \\ &= \frac{100 \tan. (\text{Lat. A}), \tan. (\text{Lat. B}) + 100 \sin. (\text{Co. D Long.})}{100 \sec. (\text{Lat. A}), \sec. (\text{Lat. B})} \end{aligned}$$

$$= \frac{N + \text{Dep.}}{M} \quad \left(\begin{array}{l} + \\ - \end{array} \text{Dep. according as D Long. is less or greater than } 90^\circ \right).$$

Hence the rule.—With the two Lats. enter the Spherical Traverse Table (Table 5), and take out M and N. 100 Sec. (Lat. A), Sec. (Lat. B), and 100 Tan. (Lat. A), Tan. (Lat. B).

With the complement of the D Long. as a Course and Dist. 100 (Table 2), find the Dep. and write it under N. 100 Sin. (Co. D Long.)

When the D Long. is less than 90° , add this Dep. to N (because Cos. D Long. is +); when the D Long. is greater than 90° , take the diff. of Dep. and N (because Cos. D Long. is -).

With this sum or diff. as D Lat. and M as Dist., find the arc in Table 2.

$\cos. \text{Dist.} = \frac{N + \text{Dep.}}{M}$; this is the distance required in degrees of 60 miles each.

Note.—There is an omission in this last part of the rule, viz.:—if the D Long. is greater than 90° and Dep. is greater than N, the arc found in Table 2 must be taken from 180° (because Cos. Dist. is then a negative quantity.)

FOR THE COURSE.

In the spherical triangle A P B

$$\cos. A = \frac{\cos. BP - \cos. AB, \cos. AP}{\sin. AB, \sin. AP} = \frac{\cos. BP}{\sin. AB, \sin. AP} - \frac{\cos. AB, \cos. AP}{\sin. AB, \sin. AP}$$

$$\begin{aligned}
 &= \text{Cos. } B P, \text{ Cosec. } A B, \text{ Cosec. } A P - \text{Cot. } A B, \text{ Cot. } A P \\
 \text{Cos. Course} &= \text{Sin. (Lat. B), Cosec. (Dist.), Sec. (Lat. A) - Cot. (Dist.),} \\
 &\quad \text{Tan. (Lat. A)} \\
 &\quad \text{Sin. (Lat. B), 100 Sec. (Co. Dist.), Sec. (Lat. A)} \\
 &\quad - 100 \text{ Tan. (Co. Dist.), Tan. (Lat. A)} \\
 &= \frac{\text{Sin. (Lat. B), } M \overline{+} N}{100} \quad \begin{matrix} (-N \text{ according as Dist. is less or} \\ + \text{ greater than } 90^\circ) \end{matrix} \\
 &\quad \text{Dep. } \overline{+} N \\
 &= \frac{\quad}{100}
 \end{aligned}$$

Hence the rule.—With the Lat. in (Lat. A) and the complement of the Dist. in degrees, find in Table 5, M and N. 100 Sec. (Co. Dist.), Sec. (Lat. A), and 100 Tan. (Co. Dist.), Tan. (Lat. A.)

With the Lat. to (Lat. B) as Course and M as Dist. (Table 2), find the Dep., and write it under N. Sin. (Lat. B), M. When the Dist.* is less than 90° , take the diff. between this Dep. and N (because Cosec. Dist. is + and Cot. Dist. is +). When the Dist.* exceeds 90° , take the sum of the Dep. and N (because Cosec. Dist. is + and Cot. Dist. is -). With this diff. or sum, as D Lat. and Dist. 100 (Table 2), find the Course,

$$\text{Dep. } \overline{+} N \\
 \text{Cos. Course} = \frac{\quad}{100} \quad \text{When } A B \text{ or Dist. is less than } 90^\circ, A \text{ is } + \text{ if}$$

the Dep. is greater than N, hence the Course must be reckoned from N in N Lat., and from S in S Lat. When A B or Dist. is less than 90° , A is - if the Dep. is less than N, hence the Course must be reckoned from N in S Lat., and from S in N Lat. When A B or Dist. is greater than 90° , A is always +, hence the Course must be reckoned from N in N Lat., and from S in S Lat.

338.

FOR THE DISTANCE.

The formula is the same as in 337.

Rule.—With the two Lats. take out from Table 5, M and N.

100 Sec. (Lat. A), Sec. (Lat. B) and 100 Tan. (Lat. A), Tan. (Lat. B.)

With the complement of the D Long. as Course and Dist. 100 (Table 2), find the Dep. 100 Sin. (Co. D Long.)

When the D Long. is less than 90° , take the diff. between this Dep. and N (because Cos. D Long. is +, and the product of the Tangents is -, the Lats. being of contrary names); when the D Long. is greater than 90° , take the sum (because Cos. D Long. and the product of the Tangents are both -).

* Raper gives D Long.; Dist. seems preferable.

With this diff. or sum, as D Lat. and M as Dist., find the arc in

$$\text{table 2. Cos. Dist.} = \frac{N \pm \text{Dep.}}{M}$$

When the D Long. is less than 90° . If the Dep. is greater than N, this arc is the Distance required (because N is -, Dep. is +, $-N + \text{Dep.}$ is +, therefore Cos. Dist. is +); if the Dep. is less than N, take the supplement (because $-N + \text{Dep.}$ is -, therefore Cos. Dist. is -).

When the D Long. is greater than 90° , take the supplement of the arc (because N is -, Dep. is -, $-N - \text{Dep.}$ is -, therefore Cos. Dist. is -).

FOR THE COURSE.

With the Lat. in (Lat. A), and the complement of the Dist. in degrees, find in Table 5, M and N. 100 Sec. (Lat. A), Sec. (Co. Dist.) and 100 Tan. (Lat. A), Tan. (Co. Dist.)

With the Lat. to (Lat. B) as Course and M as Dist. (Table 2), find the Dep. Sin. (Lat. B) M.

When the Dist.* is less than 90° , take the sum of this Dep. and N (because Sin. (Lat. B) is -, and Cot. Dist. is +); when the Dist.* is greater than 90° , take the diff. (because Sin. (Lat. B) is - and Cot. Dist. is -). With this sum or diff. as D Lat. and Dist. 100 (Table 2)

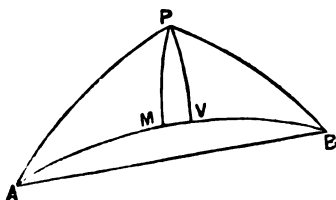
$$\text{find the Course. Cos. Course} = \frac{\text{Dep.} \pm N}{100}$$

When A B or Dist. is less than 90° , A is always -, hence the Course must be reckoned from N in S Lat., and from S in N Lat.

When A B or Dist. is greater than 90° , A is + if the Dep. is less than N, hence the Course must be reckoned from N in N Lat., and from S in S Lat.

When A B or Dist. is greater than 90° , A is - if the Dep. is greater than N, hence the Course must be reckoned from N in S Lat., and from S in N Lat.

346.



From P, the pole, let fall PV perpendicular to the arc of a Great Circle AB, then V is the vertex. Let M be the point of maximum separation of the Great Circle and Rhumb Line, then PM is the Colat. of M, MPV is the D Long. between M and V. Also at

* As before, Dist. is used instead of D Long.

the point M the curve is parallel to the Rhumb Line AB, therefore PM V represents the Rhumb Course.

FOR THE LAT. OF M.

In the right-angled spherical triangle P V M

$$\text{Sin. } P V = \text{Sin. } M, \text{ Sin. } P M$$

$$\text{Sin. } P M = \text{Sin. } P V, \text{ Cosec. } M$$

$$\text{Cos. (Lat. } M) = \text{Cos. (Lat. of Vertex), Cosec. (Rhumb Course)}$$

Hence the rule.—To the log Cos. of the Lat. of the Vertex, add the log Cosec. of the Rhumb Course; the sum is the log Cos. of the Lat. required.

FOR THE LONG. OF M.

$$\text{Cos. } M = \text{Sin. } M P V, \text{ Cos. } P V$$

$$\text{Sin. } M P V = \text{Sec. } P V, \text{ Cos. } M$$

$$\text{Sin. } D \text{ Long.} = \text{Cosec. (Lat. of Vertex), Cos. (Rhumb Course)}$$

Hence the rule.—To the log Cosec. of the Lat. of the vertex, add the log Cos. of the Rhumb Course; the sum is the log Sin. of the D Long. between the vertex and the point required.

388.

Let A C be the Great Circle cutting the Equator B C in C, A B the meridian of A, then A B is the Lat. of A, A is the Course at A, and the complement of C is the Course at the Equator. B C is the D Long. between A and the point on the Equator.

In the right-angled spherical triangle A B C,

$$\text{Sin. } A B = \text{Tan. } B C, \text{ Cot. } A$$

$$\text{Tan. } B C = \text{Sin. } A B, \text{ Tan. } A$$

$$\text{Tan. (D Long.)} = \text{Sin. (Lat. } A), \text{ Tan. (Course at } A)$$

Hence the rule for the longitude of the point.—To the log Sin. of the Lat. of either place, add the log Tan. of the Course on the Great Circle from that place to the other; the sum (rejecting ten) is the log Tan. of the D Long. of the place and the point required.

$$\text{Also Sin. (} 90^\circ - C) = \text{Cos. } A B, \text{ Sin. } A$$

$$\text{Sin. (Required Course)} = \text{Cos. (Lat. } A), \text{ Sin. (Course at } A)$$

Hence the rule for the Course at the point.—Add together the log Cos. of the Lat. and the log Sin. of the Course (as already employed); the sum (rejecting ten) is the log Sin. of each Course required.

W. H. BOLT.

Nautical Academy,

10, King Street, Tower Hill.

BOOKS RECEIVED.

Annual Report of the United States Lighthouse Board for 1875.
Washington. 1875.

From this report we gather that the authorities in the United States are "moving along" in matters connected with lighthouses. The enormous river and lake navigation of this vast continent necessitates a considerable amount of lighting and marking for these internal waters, in addition to that for the extensive sea boards of the Atlantic on the east, and the Pacific on the west. It appears that the total number of lighthouses now maintained is 919; light ships, 23; fog-signals 45; day beacons, 858; and buoys, 2,901. It appears also that the authorities are only now contemplating the introduction of mineral oil into their lighthouses. This seems rather strange, considering that mineral oil has been used in European lighthouses for some years, and that perfectly safe petroleum can be obtained in their own country, at half the price of the lard oil which is now in use. We notice in the appendix to the report that Professor Henry, the Chairman of the Lighthouse Board, keeps up his battle with Dr. Tyndall on the subject of the propagation of sound through the atmosphere, and brings forward recent experiments to support his theory of upper wind currents, as opposed to Dr. Tyndall's "acoustic clouds" in reference to the obstruction of the passage of sound through the air.

British Maritime Supremacy: a brief Analysis of its Past, Present, and possible Future Condition, showing the Necessity for a Division of the Duties of the Fleet, and the Establishment of a Coast Defence Militia.
By a retired naval officer. London: Hamilton, Adams & Co., 32 Paternoster Row. 1876.

THE author of this pamphlet thinks we are wasting time and money by organising elaborate means of *offence*, and neglecting the establishment of means of *naval defence*. We must confess that we are rather tired of this kind of pamphlet, in which it seems to be taken for granted that one of these days an enemy will suddenly, silently, and "unknown" to the Admiralty, swoop down upon one or more of our sea-ports, and create considerable havoc amongst the shipping and the inhabitants. We do not agree with those who live in continual dread lest such a contingency should happen without our knowing it, and therefore our sympathies do not altogether run with the author of this pamphlet. But in regard to the hardy fishermen round our coasts, we quite agree with our author that it is most desirable to utilize them if possible

as a reserve force for the protection of our ports and harbours, if the necessity should arise, and we also agree with him that it is no use to depend upon the Merchant Navy as it now is for any practical or useful service in time of war. We further agree with him in deprecating the costly outlay for monster ships and gigantic guns. All these points, however, have been urged again and again by various writers in pamphlets and elsewhere; and the retired naval officer who now addresses the public is merely playing the same old tune, but with some ingenious variations, for which he deserves credit. One advantage the pamphlet possesses is that the subject is dealt with in a matter-of-fact, straightforward manner, without sensational or otherwise affected writing; and, if we may offer advice to the writer, it would be that he should devote his literary power to some subject not so hackneyed as Britain's maritime supremacy.

We have also received—

The Journal of the American Society of Civil Engineers. April, 1876.

Rivista Marittima. Rome. April and May, 1876.

Rivista Internazionale. Firenze. April and May, 1876.

Report of Melbourne Sailors' Home. 1875.

FIREDAIMP AND THE BAROMETER.—The decrease of atmospheric pressure which this week has unloosed the spirit of the winds above ground, and probably occasioned a great amount of loss and damage on land and sea, has been no less a source of peril to the miners, who work like the moles underground. The damage in coal-mines, consequent especially on the sudden fall of the mercury in the barometer tube, is occasioned in this wise. When the glass is high and the pressure of the superincumbent atmosphere correspondingly great, the dangerous carburetted hydrogen is prevented from issuing from the walls and sides of the coal-seam; when the pressure is suddenly lessened the gas escapes from numberless chinks and crannies, and accumulating, sometimes very rapidly, until it reaches the proportion sufficient with common air to produce an explosive compound, the naked light that is harmless under more favourable conditions, suddenly takes effect, and a deadly catastrophe is the result. In this way the barometer and barometric warnings are almost as useful to the coal-miner as they are to the mariner and fisherman.—*Iron.*

SHIPBUILDING, 1876.

STEAMSHIPS.

Ports.	No. of Ships first four months.		No. of Ships correspond- ing period last year.		Gross Tonnage first four months.		Gross Tonnage corresponding period last year.	
Glasgow	22	...	34	...	20,842	...	34,901
Greenock	6	...	6	...	3,172	...	8,074
Port Glasgow	...	4	...	10	...	3,197	...	6,284
Sunderland	...	6	...	6	...	8,042	...	8,103
Newcastle	...	16	...	11	...	15,168	...	13,757
North Shields	...	6	...	4	...	471	...	3,030
South Shields	...	7	...	3	...	1,114	...	2,451
Liverpool	3	...	2	...	3,525	...	1,178
Dundee	2	...	4	...	1,967	...	1,988
Hartlepool	...	4	...	8	...	2,108	...	8,820
Aberdeen	3	...	2	...	1,006	...	1,357
London	9	...	2	...	950	...	349
Belfast	1	...	—	...	497	...	—
Stockton	1	...	2	...	204	...	3,392
Middlesbro'	...	2	...	7	...	1,859	...	6,795
Hull	2	...	1	...	430	...	3,110
Whitby	1	...	3	...	1,447	...	3,595
Southampton	...	4	...	1	...	617	...	31
Other Ports	...	8	...	7	...	476	...	1,373
Totals		107		113		67,092		108,588

CHINESE LIGHTS AND BUOYS.—Mr. Hart, the Inspector-General of Chinese Maritime Customs at Peking, has issued a yellow-book containing a “list of the Chinese lighthouses, light-vessels, buoys, and beacons for 1876.” There are 64 Chinese lights, 32 buoys, and 40 beacons on the coast, in addition to seven foreign lightships and 43 foreign light-houses. When Mr. Hart entered upon his duties in 1863 there were not more than four or five ordinary lights on the Chinese coast.

SHIPBUILDING, 1876.

SAILING SHIPS.

Ports.	No. of Ships first four months.	No. of Ships correspond- ing period last year.	Gross Tonnage first four months.	Gross Tonnage corresponding period last year.
Aberdeen ...	6	8	2,899	1,592
Barrow ...	2	8	1,176	2,105
Belfast ...	1	1	1,933	821
Bristol ...	2	—	246	—
Cowes ...	2	4	184	374
Dartmouth ...	11	12	1,168	888
Dundee ...	4	2	2,803	1,900
Faversham ...	7	1	275	89
Glasgow ...	12	18	12,297	20,045
Greenock ...	6	8	1,858	7,284
Grimsby ...	9	5	1,045	821
Hartlepool ...	1	—	879	—
Hull ...	4	5	289	322
Jersey ...	8	4	211	487
Liverpool ...	15	9	11,253	5,685
London ...	5	3	249	188
Middlesbro' ...	1	1	122	182
Newcastle ...	2	1	1,738	370
Plymouth ...	10	4	1,262	727
Port Glasgow ...	5	7	3,161	6,985
Portsmouth ...	1	2	207	198
Rochester... ..	4	4	168	196
Southampton ...	5	5	416	476
Stockton ...	1	1	1,485	1,472
Sunderland ...	16	19	10,134	14,728
Whitehaven ...	1	2	818	2,255
Workington ...	—	1	—	1,069
Yarmouth ...	6	2	277	88
Other Ports ...	63	56	9,024	8,195
Totals	205	188	66,422	78,787

MONTHLY ABSTRACT OF NAUTICAL NOTICES.

No.	PLACE.	SUBJECT.
107	BLACK SEA—Kertch Strait—Kyz Aul Point	Establishment of a Light.
108	BLACK SEA—Kertch Strait—Cape Takli	Discontinuance of Light.
109	SPAIN—North Coast—Guetaria Point	Alteration in Light.
110	FRANCE—West Coast—Foures	Establishment of Harbour Light.
111	FRANCE—North Coast—Havre	Establishment of Harbour Light and Fog-Signal.
112	SOUTH PACIFIC OCEAN—Borcowen and Keppel Islands and Curaçao Reef	Alteration in position.
113	VANCOUVER ISLAND—Georgia Strait—Entrance Island	Establishment of a Light.
114	NORTH SEA—Elbe River—Cuxhaven	Withdrawal of Light-Vessel near.
115	NEW SOUTH WALES—Sugar-loaf Lighthouse	Exhibition of Green Light.
116	TORRES STRAIT—Prince of Wales Channel	Discovery of a Shoal in.
117	ADRIATIC—Brindisi	Alteration in position of Light-Vessel.
118	FRANCE—Rhône River Entrance—Faraman	Alteration in Colour of Lower Light.
119	GULF OF ST. LAWRENCE—Pocmouche Gully	Establishment of a Light.
120	SPAIN—North Coast—Bilbao and Machichago	Re-exhibition of Lights.
121	INDIA—Rangoon—China Ba-keer	Exhibition from New Lighthouse.
122	BENGAL BAY—Arracan Coast—Oyster Reef	Establishment of a Light.
123	HINDOSTAN—Kattywar Coast—Veráwal	Establishment of a Light.
124	WEST INDIES—Little Curaçao Island	Alteration in Light.
125	WEST INDIES—Oruba Island—Port Caballos	Establishment of Harbour Light.
126	WEST INDIES—Haiti—Aux Cayes Bay—Vache Island	Discontinuance of Light.
127	MEDITERRANEAN—France—Hyères	Establishment of Pier Light.
128	ADRIATIC—Port Quileto—Dente Point	Alteration in Light.
129	PACIFIC OCEAN—Fiji Islands	Reported Shoal near.
130	BANKS STRAIT—Tasmania—Eddystone Point	Discovery of Sunken Rocks off.

NAUTICAL NOTICES.

107.—BLACK SEA.—*Kertch Strait.*—*Kyz Aul Point.*—A light of the first order is now exhibited from a lighthouse on Kyz Aul (Kos Aul) point, west side of the entrance to Kertch Strait. The light is a *fixed white and green* light, showing *white* between the bearings of West, through North, and N.E. by E. $\frac{1}{2}$ E.; and *green* from N.E. by E. $\frac{1}{2}$ E. to E. by N. $\frac{3}{4}$ N., also between West and W. by S. $\frac{3}{4}$ S. The sector of green light seen from the westward covers the Ilchan Kai rocks; and that seen from the eastward the Kishla reef and Highflyer rock. The

light is elevated 203 feet above the sea, and should be seen 20 miles. The tower, 79 feet high, is built of stone, and painted black and white in vertical stripes. Two houses are close to its eastern side. Position, lat. $45^{\circ} 3' 40''$ N., long. $96^{\circ} 22' 25''$ E.

Note.—When nearing Kyz Aul point from the westward, vessels must keep in the limit of the white light. When entering or leaving Kertch strait, St. Paul light should be kept in sight when crossing the eastern green sector of Kyz Aul light, to clear the dangers off Cape Takli and Kishla point.

108.—BLACK SEA.—*Kertch Strait.*—*Talki Point.*—The light exhibited on Talki point has been discontinued.

109.—SPAIN.—*North Coast.*—*Guetaria.*—With reference to Nautical Notice, No. 14 (January, 1876), on the obscuration of Guetaria light towards the land between the bearings of S.E. $\frac{2}{3}$ E. and N.W. $\frac{2}{3}$ W. The light is now visible between those bearings.

110.—FRANCE.—*Rhone River Entrance.*—*Fouras.*—A fixed white light is now exhibited from an iron pillar at the end of the pier of Fouras north harbour; it is elevated 21 feet above high water, and should be seen 7 miles. Position, lat. $45^{\circ} 59' 45''$ N., long. $1^{\circ} 6' W.$

111.—FRANCE.—*North Coast.*—*Havre.*—A fixed red light is exhibited from a post on the great quay at Havre, which, kept in line with the red light of the south pier, marks the direction into the harbour. A steam fog-trumpet has been established near the lighthouse on the north-west mole, which in thick or foggy weather will be sounded.

112.—SOUTH PACIFIC OCEAN.—*Boscawen and Keppel Islands, and Curacao Reef.*—Information has been received that the brig *Vision*, on a voyage from Samoa to Levuka, passed within 100 yards of a dangerous coral patch, the position of the vessel being then from 16 to 20 miles distant from, and bearing a little to the east of North, of Boscawen island. The sea broke on the danger with great violence, and though under water it was distinctly seen, and estimated to be about 60 yards in extent. The reef, which is believed to be that discovered by H.M.S. *Curacao* in 1865, does not always show, as on this occasion the brig *Vision* had passed before the break was observed: it is therefore very dangerous. From a re-investigation of the positions of Boscawen and Keppel islands, and that of Curacao reef, the following positions have been assigned to them respectively, viz.:—Boscawen island, lat. $15^{\circ} 52' S.$, long. $178^{\circ} 50' W.$; Keppel island, $15^{\circ} 58' S.$, long. $179^{\circ} 52' W.$; Curacao reef, $15^{\circ} 31' S.$, long. $178^{\circ} 44' W.$

113.—VANCOUVER ISLAND.—*Georgia Strait.*—*Entrance Island.*—A light is now exhibited from a lighthouse on Entrance island, south point of entrance to Nanaimo harbour. The light is a fixed white light, elevated 65 feet above high water, and should be seen 14 miles. The tower,

50 feet high, is square, built of wood, painted white, and is attached to the keeper's dwelling. Position, lat. $49^{\circ} 12' 50''$ N., long. $128^{\circ} 48' 45''$ W.

114.—NORTH SEA.—*Elbe River*.—*Cuxhaven*.—With reference to Nautical Notices, Nos. 6 (January, 1876) and 57 (March, 1876), on the establishment of an additional light-vessel (*Elbe light-vessel No. 4*) near Cuxhaven during the winter months, information has been received that this light-vessel is withdrawn.

115.—NEW SOUTH WALES.—*Sugar-loaf Point*.—With reference to Nautical Notice, No 4 (January, 1876), on the exhibition of a green additional light from Sugar-loaf point lighthouse, notice is given that the green light is visible between the bearings of N. and N.W. by W. $\frac{1}{2}$ W. for a distance of about 3 miles, including in this arc the Seal rocks and adjacent dangers, but not Edith breaker, which is out of the fairway.

Note.—Vessels standing towards, or rounding, Sugar-loaf point, must keep out of the range of the green light.

116.—TORRES STRAIT.—*Prince of Wales Channel*.—Information has been received that the barque *Moneta* touched on a shoal in Prince of Wales channel, not laid down in the charts. The following compass bearings were taken whilst the vessel was on the shoal, viz.:—West extreme of Goode island, S.E. by E.; Hammond rock, N.E. by E. easterly; Booby island, W. by S. $\frac{3}{4}$ S. These bearings will not give the exact position of the shoal, but it is assumed to be nearly 1 mile from the west end of Goode island, and approximately in lat. $10^{\circ} 38'$ S., long. $142^{\circ} 8' 15''$ E.

Note.—Mariners should use due caution when navigating this channel in the neighbourhood of the west point of Goode island.

117.—ADRIATIC.—*Brindisi*.—The light-vessel heretofore moored off the end of the breakwater of Fort Mare, Brindisi, has been moved, and is now placed about 80 yards inside the end of the breakwater.

Note.—Vessels entering or leaving the port at night should pass a cable to the southward of the light-vessel.

118.—FRANCE.—*Rhone River Entrance*.—*Faraman*.—The lower light exhibited from the lighthouse of Faraman, entrance of le Vieux Rhone, has been changed from white to red.

119.—GULF OF ST. LAWRENCE.—*Pocmouche Gully*.—On the opening of navigation, in 1876, a light will be exhibited from a lighthouse at Pocmouche gully. The light is a *fixed green* light, elevated 35 feet above high water, and should be seen 8 miles. The tower, 37 feet high, is a square wooden building painted white, and attached to the keeper's dwelling. Position, lat. $47^{\circ} 40'$ N., long. $64^{\circ} 46'$ W.

120.—SPAIN.—*North Coast*.—*Bilbao and Machichago*.—The lights of Galea Castle, Bilbao, and on Cape Machichago, which had been discontinued for war purposes, are again exhibited.

121. — INDIA. — *Rangoon*. — *China Ba-keer*. — With reference to Nautical Notice, No. 148 (July, 1875), on the intended alteration in China Ba-keer lighthouse, a light of the first order, in accordance with that notice, is now exhibited from the screw-pile lighthouse. The light is a *fixed and flashing white* light, showing a flash *every minute*, visible seaward. It is elevated 78 feet above high water, and should be seen 15 miles. The lighthouse is in 12 feet at low water. Position, lat. 16° 16' N., long. 96° 10' 40" E. The temporary light-vessel has been removed.

122. — BENGAL BAY. — *Arracan Coast*. — *Oyster Reef*. — A light of the second order is now exhibited from a screw-pile lighthouse recently erected on Oyster reef. The light is a *fixed white* light, elevated 77 feet above high water, and should be seen 15 miles. The lighthouse is in 4 fathoms at low water. Position, lat. 20° 5' N., long. 92° 39' E.

123. — HINDOSTAN. — *Kattywar Coast*. — *Veráwal*. — A *fixed white* light of the fourth order is now exhibited at Veráwal; it is elevated 56 feet above high water, and should be seen 13 miles. The lighthouse, 40 feet high, is built of stone, and is situated on the pier head on the north-west side of the harbour. Position, lat. 20° 53' 30" N., long. 70° 22' E.

124. — WEST INDIES. — *Little Curaçao Island*. — Information has been received that the light exhibited on the east side of Little Curaçao has been changed from a fixed red light to a *fixed white* light.

125. — WEST INDIES. — *Oruba Island*. — *Port Caballos*. — A *fixed white* harbour light is now exhibited at Port Caballos, Oruba island, which should be seen 3 to 4 miles.

126. — WEST INDIES. — *Haiti*. — *Aux Cayes Bay*. — *Vache Island*. — The light on the east extremity of Vache island, Aux Cayes bay, is discontinued, and the lighthouse demolished.

127. — MEDITERRANEAN. — *France*. — *Hyères*. — A *fixed green* light is exhibited from the end of the east pier at Salines, d'Hyères, elevated 23 feet above the sea, and should be seen 3 miles. Position, lat. 43° 7' N., long. 6° 12'.

128. — ADRIATIC. — *Port Quisto*. — *Dente Point*. — The light on Dente point has been changed from a fixed and flashing white light to a *fixed white* light. The light remains obscured as before in the direction of Secca del Val.

129. — PACIFIC OCEAN. — *Fiji Islands*. — Captain Wilson, of the schooner *Zephyr*, reports the existence of an extensive shoal, on which there was a rock awash. Position (deduced from indifferent observations), lat. 15° 58' S., long. 177° 10' W.

130. — *Banks Strait*. — *Tasmania*. — *Eddystone Point*. — Information has been received of the existence of three outlying sunken rocks (*Victoria rocks*) off Eddystone point, viz., one rock with 5 feet water on it at low

water, lying E. by N. $\frac{1}{2}$ N., $\frac{2}{3}$ rds of a mile from the point, and N.N.E., $\frac{1}{2}$ a mile from Eddystone rock. The second rock, with 14 feet on it East, 1 mile from Eddystone point, and N.E. by E. $\frac{1}{2}$ E., $\frac{3}{4}$ of a mile from Eddystone rock; and the third rock, with 10 feet on it at low water, E.N.E., a $\frac{1}{4}$ of a mile from Eddystone rock.

HYDROGRAPHIC NOTICES PUBLISHED BY THE ADMIRALTY.

- No. 8.—Information relating to the east coast of Africa, Madagascar, east coast and Comoro islands. By the Officers of H.M. Ships on the Station, 1872-6.
- No. 9.—Information respecting the Gulf of Tartary and Amur river. By Captain G. L. Hummel and Commander E. J. Church, H.M.S. *Curlew*, 1875.
- No. 10.—Information relating to Baffin Bay, derived from the reports of Captain G. S. Nares, H.M.S. *Alert*, and Captain L. F. Jones, H.M.S., *Valorous*, 1875.

CHARTS, &c., Published by the Hydrographic Office, Admiralty, to the end of May, 1876, and sold by the Agent, J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill.

No.	Scale.		s.	d.
1643	m = 1.75	Italy South Coast:—Taranto Harbour...	1	0
1255	m = 0.18	China, North East Coast:—Kyau-Chau Bay to Miau-tau Strait ...	2	0
1577	m = 1.75	North America, West Coast:—Columbia river ...	3	0
2863	m = 0.9	United States:—Cape Fear River ...	2	6
2266	m = { 0.6 } { 1.0 }	Greenland:—Holsteinborg Harbour and Approaches ...	1	6
75	m = 2.85	Spain, North Coast:—Ports Sautona, Bermeo, and Sequeitio ...	1	6
164	m = 0.24	Red Sea:—Musawwa Channel ...	2	6
187	m = 0.9	Japan:—Harima Nada ...	2	6

OUR OFFICIAL LOG.

BOARD OF TRADE INQUIRIES.

Name of Vessel.	Port.	Nature of Casualty.	Judgment of Court.
<i>Arriero</i>	Liverpool ...	Stranded...	Master's certificate returned.
<i>Aurora Australis</i>	Sunderland...	Ditto ...	Master's certificate suspended for 12 months.
<i>Beaside</i>	Newcastle ...	Ditto ...	Master's certificate returned.
<i>County of Ayr</i> ...	Glasgow ...	Ditto ...	Master's certificate suspended for two years.
<i>Dunsany</i>	Newcastle ...	Foundered	1st Mate's ditto ditto.
<i>Emily</i>	S. Shields ...	Stranded...	Master's certificate returned.
			Master's certificate cancelled.
			Mate's ditto suspended for six months.
<i>Emma L. Oulton</i>	Ardrossan ...	Foundered	Master's certificate suspended for two years.
<i>Eumenides</i> ...	Liverpool ...	Ditto ...	Loss due to the ordinary perils of the sea.
<i>Finchale (s.s.)</i> ...	Sunderland	Collision	Master of the s.s. had his certificate returned. No evidence on the part of the <i>John Pegg</i> , who having been lost with all hands.
and <i>John Pegg</i> ...	Carnarvon		
<i>Goldfinder</i> ...	Belfast ...	Missing ...	Supposed to be lost through bad weather.
<i>Great Britain</i> ...	Liverpool ...	Capsized ...	Master not to blame.
<i>Great Western</i> ...	Bristol...	Stranded...	Master's certificate returned.
<i>Hannah Douglas</i>	Whitehaven...	Ditto ...	Master's certificate suspended for six months.
<i>Ho-Hoang</i> ...	Montrose ...	Stranded...	Master's certificate returned.
<i>Jane Black</i> ...	Dundee ...	Ditto ...	Master admonished and certificate returned.
<i>Joseph Howe</i> ...	London ...	Ditto ...	Master's certificate suspended for six months.
<i>Linthorpe (s.s.)</i>	London ...	Ditto ...	Master's certificate suspended for twelve months.
<i>Lothair</i>	London ...	Loss of 3 lives from fore top-sail yard	Master exonerated.
<i>Lucy Helen</i> ...	Yarmouth ...	Abandoned	Abandonment justifiable.
<i>Montreal</i>	Newcastle ...	Stranded...	Master's certificate returned.
<i>Precursor</i> ...	Montrose ...	Abandoned	Master's certificate suspended for nine months. Mate censured.
<i>Prince Arthur</i> ...	Liverpool ...	Stranded...	Master's certificate returned.
<i>Tornado</i>	Greenock ...	Ditto ...	Master censured.
<i>Turkestan</i> ...	Liverpool ...	Ditto ...	Master's certificate suspended for three months.
<i>Tweed</i>	Scarboro' ...	Foundered	Master's certificate returned.
<i>Wansbeck (s.s.)</i>	London ...	Collision	Certificate of Mate of the steamer suspended for six months.
and <i>Express</i>	London ...		

SWISS EXPORT DUTIES.—BOARD OF TRADE, May 11.—The Board of Trade have received from the Secretary of State for Foreign Affairs a copy of a decree of the Swiss Federal Council, reducing to 10 centimes per quintal the export duty on rags, refuse from cotton manufactures, and other materials used in paper-making.

NEW CHINESE PORT.—BOARD OF TRADE, April 20, 1876.—The Board of Trade have been informed by the Secretary of State for Foreign Affairs that a telegram has been received from Her Majesty's Consul at Canton reporting that the port of Kiungchow, in the island of Hainan, was opened to foreign trade on the 1st inst.

QUARANTINE NOTICE.—BOARD OF TRADE, April 20, 1876.—The Board of Trade have received, through the Secretary of State for Foreign Affairs, copies of Notices issued by the Portuguese Authorities declaring the Port of Para free from yellow fever since the 9th of January last, and the Ports of the Regency of Tripoli free from cholera morbus since the 16th of February last.

A SHOAL OFF PONDICHERY.—The Commander of the *Patna* (s) has informed the Acting Master Attendant of Madras of the existence of a patch of shoal-water near Pondichery. He states that "on the night of March 3, being then 18 miles N.E. by N. of Pondichery, the water suddenly shoaled from 10½ fathoms to 6 fathoms. We had two casts of 6 fathoms, and the water immediately afterwards deepened to 10 fathoms. This occurred at a little after 9 p.m. The night being fine and clear, the land was visible on the port beam about 3½ miles. This patch is not marked on any chart, but I am informed by the chief officer of the steamer that the fact of there being such a patch was known to Mr. Saunders, Master of the B. I. S. N. Company's steamer *Canara*." The local Government have ordered this communication to be forwarded to the Government of India for the information of the Marine Survey Department.—*Madras Mail*.

The following Official Notice has been issued by the Board of Trade :—
Caution to Shipmasters and Owners.—Defective Crew Space.—At the Liverpool Police Court, on the 17th April, 1876, the master of the vessel *Fairis* was convicted in three separate penalties and costs, under the provisions of Section 9 of the "Merchant Shipping Act, 1867." (1.) For having omitted to keep the place occupied by the seamen on board his vessel properly lighted and ventilated. (2.) For neglecting to have such place properly protected from the weather and sea, and also (3) for neglecting to have the same properly shut off and protected from cold.

vium which might be caused by cargo or bilge water.—Thomas Gray, Assistant-secretary, Marine Department.—By Order of the Board of Trade, May, 1876.

PUERTO CABELLO CUSTOM-HOUSE.—BOARD OF TRADE, May 8.—The Board of Trade have received from the Secretary of State for Foreign Affairs a despatch from Her Majesty's Chargé d'Affaires and Consul-General at Caracas, announcing a resolution by the Government of Venezuela "that the Maritime Custom-house of Puerto Cabello be authorised to give permission to the national or foreign vessels that solicit it, with the object of going to Maracaibo to load fustic or dividivi, and to sail from thence direct for Europe or the United States of America.

THE following Official Notice has been issued by the Board of Trade.—Important to Fishermen.—To British Fishermen Fishing off the Coast of Holland.—Complaints having been made to Her Majesty's Government that the crews of certain British fishing boats have misconducted themselves, when off the Dutch coast, by sailing across and cutting the nets of, and by ill-treating Dutch fishermen. Notice is hereby given that every endeavour will be used by Her Majesty's Government to assist the Dutch authorities in repressing all such outrages, and in bringing the offenders to justice. British fishermen are hereby warned that, in the event of a repetition of any of the offences complained of, the offenders will not only be liable, when the offences are committed within the Dutch territorial limits, to be arrested and proceeded against by the competent authorities in Holland, but will further, and wherever the offences may be committed, be liable to proceedings in this country under Section 267 of "The Merchant Shipping Act, 1854," which is as follows:—"All offences against property or person committed in or at any place either ashore or afloat out of Her Majesty's Dominions by any master, seaman, or apprentice, who at the time when the offence is committed is or within three months previously has been employed in any British ship shall be deemed to be offences of the same nature respectively, and be liable to the same punishments respectively, and be inquired of, heard, tried, determined, and adjudged in the same manner and by the same courts and in the same places as if such offences had been committed within the jurisdiction of the Admiralty of England; and the costs and expenses of the prosecution of any such offence may be directed to be paid as in the case of costs and expenses of prosecutions for offences committed within the jurisdiction of the Admiralty of England."—(Signed) C. Cecil Trevor, Assistant Secretary.—Board of Trade, Harbour Department, May, 1876.

GUATEMALA.—INCREASE OF CUSTOMS AND EXCISE DUTIES.—BOARD OF TRADE, May 4.—The Board of Trade have received from the Secretary of State for Foreign Affairs a despatch from Her Majesty's Minister at Guatemala, announcing the issue of a decree by the Minister of War charged with the Government of the Republic, raising the Customs and Excise duties. A copy of the decree may be seen on application at the Statistical and Commercial Department of the Board of Trade.

DOUBTFUL DANGERS IN SOUTH PACIFIC OCEAN.—The following information relative to a search for doubtful reefs and islands in the South Pacific Ocean, made by Captain Juan E. Lopez, commanding the Chillian corvette *O'Higgins*, 1874, has been derived from the Chillian Hydrographic Notice, No. 17, of 1875. These reefs and islands were supposed to exist between latitude 22° S. and 32° S., and longitude 92° 24' W. and 110° 30' W., situated as follows:—Reef, 31° 58' S., 95° 09' W.; Buchile island, 26° 21' S., 92° 24' W.; Island, 27° 58' S., 95° 00' W.; Gray island, 26° 28' S., 94° 33' W.; Gray island, 25° 30' S., 94° 32' W.; Pilgrim island, 24° 36' S., 104° 33' W.; Waihou island, 22° 06' S., 108° 40' W.; Island, 31° 11' S., 110° 30' W. Captain Lopez searched for the above dangers separately, devoting two or more days to cruising over the supposed positions of each danger, and sounding to the depth of 465 fathoms without obtaining bottom, or perceiving any indication of shoal water; they have therefore been erased from the charts.

TAX LEVIED ON PASSENGERS LANDED IN THE UNITED STATES.—The Board of Trade have received information through the Foreign Office from Her Majesty's Minister, at Washington, that the Supreme Court of the United States has recently decided in the case of the North German Lloyd's Steamship Company, against the Bureau of Emigration at New Orleans, that it is a violation of the constitution of the United States, and therefore illegal for any particular State to exact from masters of emigrant ships head money on each passenger from a foreign country landed within its territory. The Supreme Court has also decided that the masters of emigrant ships cannot be legally called upon to give bonds as security that none of the passengers they land shall become a burthen to the country.

THE NAUTICAL MAGAZINE.

VOLUME XLV.—No. VII.

JULY, 1876.

CHRISTOPHER COLUMBUS AND SEBASTIAN CABOT.



LETTER from Rome of the date of June 2, published in the *Times* of June 5, has announced, that the King of Italy has consented to become the honorary president of a committee, established at Philadelphia with the object of erecting a statue to the memory of Christopher Columbus. The conception of the design does honour to the citizens of Philadelphia, for there can be no doubt that Columbus was the first of the great navigators of the fifteenth century, who verified the possibility of realising the dream of his contemporaries, that a new world might be discovered by striking boldly out from the frontier islands of the Old World across the mysterious waters of the Atlantic Ocean. But Columbus never set foot on the North American continent. His first discovery, which was made on Friday, 12th October, 1492, seventy-one days after he sailed from the port of Palos in Andalusia, was a small island, one of the cluster of the Luccayos or Bahama Islands, which stretch out in a south-easterly direction from the coast of Florida, covering as it were with a band the approaches to the northern coasts of Cuba and Hispaniola, the latter of which islands has lost its original Spanish name, and is now generally called Hayti or San Domingo. It has been a subject of some doubt, on which of the Bahama Islands Columbus first landed. It is known that the Indians called the island in question by the name of Guanahani, and that Columbus gave to it the Spanish name of San Salvador. But four islands of the Bahama group lay claim to the Indian name of Guanahani, and each has had distinguished supporters. It was the opinion of the

learned Spanish historian Juan Bautista Muñoz ("Historia del Nuevo Mundo," Madrid, 1793), that Watling Island, the outermost islet in the centre of the band, is the true Guanahani. Another Spanish writer on maritime discoveries, Navarrette ("Coleccion de los viages y descubrimientos, &c.," Madrid, 1825), has identified Guanahani with the largest of the Turk's Islands, which lie off the northern coast of Hispaniola, whilst two more recent authorities of high repute respectively in literature and in science, Washington Irving on the one hand, and Baron Alexander Von Humboldt on the other, have maintained the claim of Cat Island, which lies to the north-west of Watling Island, to be the San Salvador of Columbus. They have this fact in their favour, that Cat Island has been designated as San Salvador in most charts during the two last centuries. A claim on behalf of another island has been recently advanced by a distinguished Brazilian diplomatist, Senr. Fr. Adolph de Varnhagen, in his work entitled "La Verdadera Guanahani de Colon," published at Santiago de Chile, 1864, in which he contends that Mayaguana, which lies to the north-west of the Turk's Islands, was the first island discovered by Columbus. It is satisfactory, however, to find that the most recent local investigations support the opinion of the older authorities, that Watling Island is the true Guanahani. The late Captain Becher, R.N., of the Hydrographic Department at Whitehall, examined this question very carefully in a work entitled "The Landfall of Columbus," published in London in 1856; and Mr. R. H. Major, F.S.A. of the British Museum, Secretary of the Royal Geographical Society of London, has published in the journal of that Society for 1871, a study of the track of Columbus as suggested by Captain Becher, and after a careful comparison of the data to be found in the diary of Columbus with the physical characteristics of Watling Island, has shown that the island called by the Indians Guanahani is unquestionably that which is marked in English charts as Watling Island. This conclusion harmonises with the chart of the Bahamas published in 1601 by A. de Herrera, the official cosmographer of the Indies of Spain, who describes the "Cat Island" of the English charts by the Spanish name of Guanima, and "Watling Island" by the name of Guanihana.

It was not until Christopher Columbus re-visited the Western Hemisphere for the third time, in 1498, that he discovered Trinidad, and entered the mouth of the River Oropoco, which he little suspected to be one of the great arterial rivers of the South American continent. It was at a still later period that Columbus set foot on the Central American continent, having re-visited the West for the fourth time in 1502, when in prosecuting his researches for the imaginary strait, which would lead him direct to the land of Cathay, he discovered in that year the Mosquito coast, and sailing southward along the coast to Costa Rica,

anchored at last in a spacious harbour, to which he gave the name of Puerto Bello. His last discovery was made on the 6th February, 1508, when he reached the River Belem, where he believed that he had at last discovered one of the richest parts of the land of Cathay, whence King Solomon had derived most of his unbounded wealth. Here Christopher Columbus formed his last settlement, which he left under the charge of his brother Bartholomew; shortly after which, he himself returned to Spain, and landed at St. Lucar on the 7th November, 1504, when the discoverer of the New World, who had added to the crown of Spain its brightest jewel, found that the King, whom he had so faithfully and efficiently served, had lost sight of all his past services, and treated all his applications with indifference and neglect. Mr. W. S. Lindsay, in his recent "History of Merchant Shipping," has graphically described the ingratitude of the Spanish Court, which may perhaps have been attributable to the circumstance that Queen Isabella, who had hitherto steadfastly protected Columbus, was dangerously ill of a malady, from which she never recovered. Be that as it may, the stain attaches to the escutcheon of Spain, that on the 20th May, 1506, the great navigator, who had done so much for the Spanish Monarchy without reward, and endured so much for the Spanish Monarchy without complaint, was allowed to pass away from this earthly world in poverty and neglect. More than three centuries have elapsed, during which "Cosas d'Espana" have almost become a bye-word amongst nations, and now the Great Republic of the West on attaining its centenary has resolved to redress the signal injustice of the ancient monarchy of the Spanish Indies, and to make a home for the memory of the great navigator in the hearts of future generations of her citizens. May the omen be propitious. Philadelphia has also shown a graceful courtesy to the Old World by inviting the King of Italy, the native country of Columbus, to co-operate in the act of atonement, and to preside, as of honour, over the committee appointed to carry it into execution.

During the period which elapsed between the spring of 1486, when Christopher Columbus was first able to obtain an interview with King Ferdinand and Queen Isabella, and the spring of 1492, when they at last approved the scheme of his enterprise, Bartholomew Columbus paid a visit to London in the hope of persuading King Henry VII. to supply his brother Christopher with the means of carrying into execution his proposed voyage of discovery. Bartholomew met with great misfortunes on his way, having fallen into the hands of pirates; but he ultimately arrived in London, and obtained an audience of King Henry VII., when he submitted to his Majesty a map of the world, which is stated by Spotorno, in his "Memoir of Columbus," to bear the date of "London, February 13, 1488." Like other Sovereign Princes of his time, King

Henry VII. engaged frequently in commercial adventures on his own account, and he appears, on the occasion of the visit of Bartholomew Columbus to have listened favourably to his proposals, and to have invited his brother Christopher to England, but at what time this invitation was made is not clear. There are good reasons, however, for believing that no definite reply was made by King Henry VII. to the application of Bartholomew Columbus until after the month of May, 1489, when the Spanish Sovereigns resumed their long-adjourned examination of the proposals of Christopher Columbus. It was natural, therefore, that Christopher should, under such circumstances, have declined to leave Spain, where his prospects of success had suddenly brightened, without its being necessary to suppose that he was influenced by other motives. The fame of the successful result of the expedition of Columbus was soon spread throughout Europe, and it may have been justly matter of chagrin to King Henry VII. that Spain had entwined round her brow the laurels which England might have won, if her King had been more prompt in listening to the overtures of Bartholomew Columbus. But it is an admissible theory, that King Henry VII. had already had under his consideration another route to arrive at Cathay by striking across a more northerly part of the Western Ocean. There are good reasons for believing that Christopher Columbus had heard in Iceland traditions of the Icelanders having found their way across the Western Seas to Markland, and Vinland (Nova Scotia, and Rhode Island), before the thirteenth century, and that those traditions were also known to John Cabot, a natural born citizen, like Columbus, of the Republic of Genoa, but who, having obtained rights of citizenship in 1476 at Venice, is from that circumstance more frequently described as a Venetian. John Cabot appears to have settled in Bristol, at that period the second city of trade in England, some time between 1460 and 1470, where he followed "the trade of merchandise," and where there is a tradition that he had his habitation in the suburb known as Cathay, which runs right up under the shadow of St. Mary Redcliffe's Church. It was here most probably that Sebastian Cabot, the second son of John Cabot, was born, for Sebastian Cabot told his intimate friend Richard Eden, who published the statement in his "Decades of the New World" (A.D. 1555), whilst Sebastian was still alive, "that he was *born in Bristowe*, and that at iiij yeareould he was carried with his father to Venice, and so returned agayne into England with his father after certain years, whereby he was thought to have been born in Venice." If, therefore, the native country of Sebastian Cabot is to be inferred from his own belief as to his birthplace, it is clear that he considered himself to be a natural born subject of England, although he appears on one occasion, when he was in the service of Emperor Charles V., to have spoken of himself as a Venetian, pro-

bably on account of his father having had conferred on him the rights of Venetian citizenship. But there is evidence in support of the native character of Sebastian Cabot being English as complete as can reasonably be expected. In the first place, the calendars of the city of Bristol under the year 1499 ("Sayers Memoirs of Bristol," vol. 11, p. 208) contain an entry to this effect:—"This yeaere Sebastian Cabot, *borne in Bristoll*, proffered his service to King Henry for discovering new countries, which had noe greate or favorable entertainment of the King; but hee, with no extraordinary preparations, sett forth from Bristoll and made greate discoveries." In the second place, Sebastian Cabot was formally declared by the King of England's Council to be an English subject, when the Spanish Ambassador, shortly after Sebastian's return to England in 1548, demanded that he should be sent back to Spain, as being in the service of the Emperor as Grand Pilot of the Emperor's Indies. But the King's Council replied, according to a letter preserved amongst the Harleian MSS., No. 523, "That, as for Sebastian Cabot, word was first made that he was not detained here by us, but that he of himself refused to go either into Spain or to the Emperor in Flanders; and that he being of that mind, and *the King of England's subject (Bristol born)*, no reason or equity would that he should be forced or compelled to go against his will." Mr. J. F. Nicholls, the city librarian of Bristol, has set out this letter in full in his interesting "Memoir on the Discoveries of Sebastian Cabot," London, 1869, p. 148. There is, however, no evidence forthcoming from any extant register book of baptisms as to the year in which Sebastian Cabot was born; but Mr. Rawdon Brown's recent researches into the archives of the city of Venice, under the direction of the Master of the Rolls, have been rewarded by the discovery of two entries in the State Calendars, one of them being a privilege, under the date of August 11th, 1472, confirming rights of citizenship to Aloise Fontano, of Bergame, with a supplementary memorandum, to the following effect:—"Simile privilegium factum fuit Johanni Caboot sub duce suprascripto, A.D. 1476;" the other being a decree of the Venetian Senate, under the date of March 29th, 1476:—"That a privilege of citizenship, within and without, be made for John Cabot, as usual, for a residence of fifteen years. Ayes, 149; noes, 0; neutral, 0." As this privilege would have expired in 1491, there was nothing to deter John Cabot from resuming his residence in Bristol after that year; and it would appear, from a statement made by Sebastian Cabot at Seville, when he was in the service of the Emperor Charles V. as "Piloto-Mayor," that he had returned to Bristol at the time, when the news of Columbus having discovered the coasts of the Indies reached the Court of King Henry VII., "Whereof there was great talk, insomuch that all men, with great admiration, affirmed it to be a thing more

divine than human to sail by the West into the East, where spices grow, by a way that was never known before." Meanwhile, King Henry VII. had concluded a treaty with Denmark, under which he was at liberty to import into Iceland all kinds of clothing and provision, so as to make it a kind of intermediate station for supplies to vessels, that might attempt the north-west route for Cathay under his protection.

There are, however, grounds which have induced writers of great research to believe that John Cabot, in company with his son Sebastian, undertook an expedition to discover the westward route to Cathay from the private resources of himself and of the enterprising merchants of Bristol in 1494, three years before they sailed forth in the good ship *Matthew* of Bristol, to make discoveries under the patent of King Henry VII. There is, for instance, preserved in the Bibliothèque Nationale at Paris a map, which purports to have been "extended in plane" by Sebastian Cabot himself in 1544, which represents the mainland of the North American Continent with various islands between the parallels of 40° and 60° of north latitude. The map has this amongst other inscriptions on it—"Terram hanc olim nobis clausam aperuit Joannes Cabotus Venetus, necnon Sebastianus Cabotus ejus filius, anno ab orbe redempto 1494, die vero 24 Junii, hora 5 sub diluculo; quam terram primum visam appellarunt, et insulam quandam ei oppositam insulam divi Joannis nominarunt, quippe quæ solemnî die festo divi Joannis aperta fuit. Diversis generibus piscium abundat, horum autem maxima copia est, quos vulgus Baccalios (morue) appellat."* This map is historically of great interest, as all the maps and charts, which Sebastian Cabot left behind him, have been made away with under circumstances, which have as yet received no satisfactory explanation. If the inscription on this map could be relied upon as having been engraved upon it by the authority of Cabot himself, when he was pilot-major of the Emperor Charles V. in 1544, it would be very strong evidence in favour of the discovery of certain islands on the coast of North America having been made by John and Sebastian Cabot in 1494. This theory was in fact started as far back as 1594, by a German named Nathaniel Kochhaf, who wrote under the Latin name of Chytræus a work entitled "*Variorum in Europa Itinerum Descriptio*," in which he gives an account of a large map which he had seen at Oxford, on which there were engraved seventeen inscriptions, amongst which was an inscription to the same

John Cabot, a Venetian, and his son Sebastian Cabot, discovered this land, formerly unknown to us, in the year of the redemption of the world, 1494, on 24th June, at five o'clock of the dawn; which land they called the "First Seen," and the island opposite to it "The Island of St. John," as it was discovered on the Festival of St. John. It abounds in various kinds of fish; but there is the greatest quantity of the kind commonly called Baccalios (cod-fish).

effect as the inscription on the map in the Bibliothèque Nationale in Paris, purporting that John and Sebastian Cabot had discovered the New Land in 1494. No clue to the existence of this Oxford map in the present day is forthcoming; but Mr. J. S. Kohl, of Bremen, in his "History of the Discovery of the East Coast of North America," published in 1869 by the Maine Historical Society, has shown by a comparison of Kochhaf's account of the Oxford map with the actual features of the map in the Bibliothèque Nationale at Paris, that they are identical maps. It is possible, therefore, by a careful examination of the Paris map, to test the value of the evidence supplied by the inscription, on which Kochhaf relied, and which has led distinguished geographers, such as Harris, Pinkerton, Sir John Barrow, and last of all M. d'Avezac of Paris, to believe that the true date of the discovery of North America by the Cabots is to be referred so far back as to 1494. On the other hand, Mr. Richard Henry Major, F.R.G.S., who is at the head of the Geographical Department of the British Museum, has made a very careful investigation of the evidence in favour of this earlier date, and we think that he has shown that the map in the Bibliothèque Nationale at Paris, which is anonymous, is in all reasonable probability a map which was neither engraved nor published in Spain, where Sebastian Cabot was resident in 1544, and that it was probably published in Belgium, if not in Germany. The map itself, which is now in Paris, was in fact found in Germany, and although there are historical records of maps ascribed to Sebastian Cabot having existed in Belgium and in England, no such map is known ever to have been published in Spain. The evidence then which is forthcoming from this map cannot safely be relied upon, as if coming from Sebastian Cabot himself. The figure of the islands and lands, which are represented as discovered by the Cabots, may, indeed, have been copied from an original figure extended in plane by Sebastian Cabot, but the inscription in question speaks of the Cabots in the third person in contract to *us* (*nobis*) to whom the lands were made known, and instead of saying, "Which land *we* called the First Seen," as might have been expected if the inscription came from the pen of Sebastian himself, it says, "Which land *they* called the First Seen." In addition, the sixteen other inscriptions which are scattered over the map, and which are partly in Latin, partly in Spanish, are in a Spanish so incorrect or disfigured, particularly as regards the names of places, that they could not well have been inserted under the personal superintendence of the Pilot-Major of the Spanish Indies, whilst he was resident in Spain (1544). But there was another map, formerly preserved in the gallery of the Royal Palace at Westminster, which was cut out by Clement Adams from Cabot's map, and which contained the inscription in which occurs the date of 1494. This map was known to Hakluyt, and upon its

authority he adopted the date of 1494, in his earliest edition of the "Principal Navigations," published in 1589. But the evidence supplied by this map is not of any higher character than the evidence supplied by the Oxford and Paris maps.

It is apparently a mere repetition of the same evidence under a somewhat modified form ; and there is a further circumstance not to be overlooked, that Hakluyt himself, after mature deliberation, rejected the earlier date of 1494. Thus when he subsequently published, in 1600, the larger edition of his great work, he inserted the same inscription with the date altered in two places from 1494 to 1497, and he further adopted the date of 1497 in a table of contents prefixed to his later work. Mr. Major has justly laid considerable stress on this fact, inasmuch as Hakluyt himself was an intimate friend of William Worthington, the depository of the charts and papers of Sebastian Cabot, and Hakluyt was allowed free access to them. It can hardly be supposed that Hakluyt, who was himself a prebendary of Bristol, would have altered the record of the discovery of the continent of North America by Bristol mariners, from 1494 to 1497, without having satisfied himself as to the true date of the discovery by an examination of the original figures in Cabot's own manuscripts.

There is, however, other evidence of a contemporary character which preponderates strongly in favour of the expedition of 1497 being the occasion of the discovery of two new islands by the Cabots, far to the northward of the islands discovered by Christopher Columbus in 1492. The Letters Patent of King Henry VII., granted to John Cabot, a citizen of Venice, and his three sons, Lewis, Sebastian, and Sanctus, permission to fit out five ships at their own costs, to sail under the royal ensign, to seek out and discover any islands or land whatsoever in any part of the world, which before this time had been unknown to all Christians, and to take possession of them in the King's name. There is not the slightest suggestion that the Cabots were to take possession in the King's name of any island or islands previously discovered by them. The King himself does not appear to have had any adventure of his own in the expedition, and the Cabots must have found some difficulty in availing themselves of the Royal Patent, as they did not sail before the spring of 1497, and then only with a single vessel, the *Matthew* of Bristol, manned with a crew of eighteen men. It is not likely that they would have had any such difficulty, if they had discovered the wished-for land in 1494. Besides, the Spanish Government was very watchful of the proceedings of the Cabots, as amongst the Spanish State Papers at Simancas, recently published by M. Bergenroth, under the direction of the Master of the Rolls, there are two interesting letters which throw considerable light on the proceedings of the Cabots. The first of

these, which is published in the first volume of the "Spanish Calendars," p. 168, is a letter of the 28th March, 1496, from Ferdinand and Isabella to their ambassador in London, in which they say, "You write that a person like Columbus has come to England for the purpose of persuading the King to enter into an undertaking similar to that of the Indies, without prejudice to Spain and Portugal." They then go on to say, that they believe the King of France has thrown the undertaking in the way of the King of England, and that it cannot be undertaken without prejudice to themselves and the King of Portugal; and as they further entreat their ambassador "to take care that the King of England be not deceived in this matter," it is not unlikely that objections to the expedition were suggested to King Henry VII. on the part of the Spanish monarchs, and those objections may have contributed to delay the sailing of Cabot's expedition. Thus much, however, is certain, that the expedition of John and Sebastian Cabot, authorised by the Patent of the eleventh year of King Henry VII. (1496), did not set sail before the spring of 1497, and that in the accounts of the privy purse of the King for that year there is this entry, under the date of August 10th, 1497, "For hym who found the New Isle, £10." Again, in the Sforza Archives at Venice, which have been recently examined by Mr. Rawdon Brown, also under the direction of the Master of the Rolls, there is a letter of 24th August, 1497, which announces that "Some months ago his Majesty sent out a Venetian, who is a very good mariner, and has good skill in discovering new islands, and he has returned safe, and has found two very large and fertile new islands, having likewise discovered the seven cities, 400 leagues from England, on the western passages. This next spring his Majesty means to send him with fifteen or twenty ships." And so it happened that, in 1498, the next following year, King Henry VII. being satisfied that land had been discovered by the expedition of the previous year, granted supplemental Letters Patent to John Cabot, authorising him to take at his pleasure six English ships in any part within the realm and obeisance of England, in the King's name, and to pay for them as the King in his own cause would pay, and none otherwise, and whereas the earlier Letters Patent of 1496 only spoke generally of lands whatsoever unknown to Christians, this supplemental Patent specified that the ships to be impressed in the King's name were to proceed to the "Lande and isles of late founde by the said John." In this, as in the former Patent, John Cabot is styled a Venetian.

Whether John Cabot was dead or not before this supplemental Patent was put into force is not clear; but there is no doubt that the expedition, in pursuance of this Patent, sailed under the sole command of Sebastian Cabot. Richard Eden, in his "Decades of the New

World," p. 318, says that Sebastian Cabot in this voyage reached a latitude much higher than 58° N., where there was such cold and heaps of ice, that he durst pass no further; also that the days were very long, and in a manner without night, and the nights very clear, and that, considering the cold and the strangeness of the unknown land, he turned his course thence to the west, calling at the Baccaleios for refreshment, following the coast to the thirty-eighth* degree, whence he returned to England. It is to this voyage of Sebastian Cabot, in 1498, that we consider the true discovery of the North American Coast being a continuous mainland or a continent is to be referred, and not to the earlier voyage of 1497. It further appears that, in 1498, Perkin Warbeck's insurrection had filled the gaols in England with political delinquents, and the King did not know what to do with his prisoners. Livio Sanuto's Diary, which is preserved in the Venetian Archives, informs us that the King gave Cabot the sweepings of the prisons, all but those guilty of high treason. Cabot took out with him 300 of these jail-birds, and would willingly have left them to colonise the newly-discovered lands, but they were disheartened, and besought him to be allowed to re-embark and to return with him to England. Some of them, however, may have remained on shore, as Hojeda, a Spanish navigator who was despatched from Spain on May 20, 1499, to arrest the progress of English discovery in the Western Hemisphere, found Englishmen at Caquebacoa on the mainland when he landed there. ("Navarrette," vol. iii., p. 41.) Another explanation of the presence of these Englishmen is supplied by the fact, that private merchants at Bristol appear to have adopted some time before 1499 the practice of despatching two or more light-vessels (*caravelas*) every year on their own account "in search of the island of Brazil and the seven cities according to the fancy of that Italian Cabot," at least such was the report transmitted by the Spanish Envoy in London to the Government under the date of July 25, 1498, which is published amongst the Spanish State Papers, vol. i., p. 177. Thus much, however, may be inferred from the instructions furnished by the Spanish Government to Hojeda, that the object of his mission was to arrest the further progress of the English on the continent of North America by taking possession of the coast in the name of the King of Spain. Hojeda was accompanied by a Florentine named Americus Vesputius, who had studied cosmography at Florence under Toscanelli, and who had come to Spain to learn navigation. Vesputius subsequently, on the death of Columbus in 1506, was made Pilot-Major of Spain. He died in 1512, and by a strange

* Peter Martyr d'Anghiera states, that Cabot told him he went as far south as the latitude of Gibraltar, which would be about 36° N.

caprice of fortune the name of the Florentine Lieutenant of Hojeda has become attached to the entire continent of the Western World,* of which the middle islands and Southern Continent were discovered by Columbus, and the Northern Continent by Sebastian Cabot, and so to use the epigrammatic language of the Abbé Raynal, "Immediately that America became known from the rest of the world, it was distinguished by an act of injustice." "Sic vos non vobis" would be a fitting epitaph to be written above the tombs of both these hero-navigators, but unfortunately we know not where the mortal remains of Sebastian Cabot found their last resting-place on earth; at least the place of their interment has hitherto escaped discovery.

(To be continued.)

SEA PROTESTS.

BY a correspondence which has appeared amongst the Parliamentary Papers of the past month, it seems that the attention of the Board of Trade has been formally directed by Lloyd's Committee of Underwriters to the unsatisfactory manner in which sea protests are now prepared, with a view to some immediate legislation on the subject. The objections taken by the Committee to the present plan of extending protest by a notary, are:—(1) That it may be made at any time after the arrival of the ship, and that it may be, and often is, framed to meet a particular necessity. (2) That it is made by a notary who is not competent to rectify or correct a statement. (3) That in the absence of a central office, where protests might be registered, opposing owners and captains, notably in collision cases, apply to different notaries and declare to different statements, and, later, swear to them in a Court of Law. (4) That faith is not given to a protest which such a document ought to command, owing to the many

*The name of "America" appears to have been given first of all to the Southern Continent. The earliest map known to us in which it is so used is from the globe of Johan Schöner of 1520, still preserved in the city of Nuremburg, published by Dr. F. W. Ghillany in 1853, in his work on Martin Behaim, a cosmographer of Nuremburg, who constructed a new astrolabe which enabled the Portuguese navigators to find their latitude with greater accuracy. Behaim's globe, made by him in 1492, is still preserved at Nuremburg, in which only a few small islands are marked down as separating Western Europe from Eastern Asia. The German geographers are responsible for having fastened on the great Western Continent the name which it now bears.

known, and many suspected, cases of fraud which have been brought to light; and, lastly, that the formality of a notary's seal and signature may have the effect, in many cases, especially abroad, of giving faith when no faith ought to be given. The Committee, although armed with abundant proof of the untrustworthiness of protests, contented themselves with citing two cases, those of the *Queen v. Guerra*, and of *Hossack v. Smith*, and then placed before the Board a suggestion for applying a remedy to the existing evil; this is, the establishment in centres of commerce, such as London, Liverpool and Glasgow, "some superior public authority, not unacquainted with nautical matters, who should take detailed and extended depositions, after a comparison with the log-book, and after the proper testing of the truth by the separate examination of the captain and the crew," and that this authority should be exercised at the Custom House, where the master must attend to enter his ship; while in the provinces a similar duty, in a more comprehensive form, might be performed by the Receiver of Wreck; that the depositions taken should be registered, and that the register should be easily accessible. Before the Board of Trade expressed an opinion upon these suggestions, the communication from Lloyd's, and another to the same purpose from the Liverpool Underwriters' Association, were submitted to Mr. Rothery, Registrar of the Court of Admiralty. Mr. Rothery's experience, as the President of the Court of the Registrars and Merchants, peculiarly fits him to express an opinion upon the subject of sea protests—the manner in which these documents are too frequently prepared, and the uses to which they are put. The result of that experience has been to demonstrate the utter untrustworthiness of protests as a rule. "I have often," says Mr. Rothery, "had protests produced before me which have been *entered*, it is true, within a few hours of the vessel's arrival in port, but which have not been *extended*, as it is called, until weeks afterwards. In other words, the master has gone before the notary on his arrival, and told him that he intended to make a protest, but he has not given the notary any details or particulars on which to draw the protest for weeks afterwards. In these cases I place no reliance whatever upon them. Mr. Rothery approves of the suggestion that there should be an office attached to the Custom House, or to the receivers, or the shipping-office, where captains might attend and make their protests. It would not be necessary that shipmasters should do this in all cases, but it should be made obligatory upon them to do so where it is the intention to found a claim against underwriters or others for losses occurring during the voyage. It is, of course, highly expedient that where accounts have to be taken between owners and underwriters, a document, such as the protest, should be taken by some impartial and competent person, and that it should be readily accessible to all the

parties interested. As it is, if a case of collision, for example, is in litigation, even if one party obtains leave of the Court to inspect the protest of his opponent, he does not know the notary before whom the protest has been made, and, if he did, being a private document, the notary might refuse to produce it—so far as to the taking of protests and their registration. But in the opinion of Mr. Rothery, something more is required, and every suggestion on such a subject, coming from such a source, is entitled to respectful attention. "What merchants, shipowners, and underwriters want," continues Mr. Rothery, "is some tribunal, some office where questions between them can be speedily and satisfactorily decided; where if there is any dispute between a shipowner and a merchant as to the amount of freight due, the number of pay days, the amount due for demurrage, for general or particular average, for damage to cargo, and other such matters, an office or tribunal in which all these questions could be at once decided, and a balance struck between the parties, so that the ship shall not be detained from undertaking a new voyage, nor the merchant from obtaining the possession of his cargo, the same office or tribunal would settle claims of shipowners and merchants upon their underwriters; and if it is intended to limit the amount which shipowners and merchants are to recover from underwriters to the actual amount of their losses, whatever may have been the amount insured, as at present in cases of fire insurance, such an office and tribunal would, it seems to me, be admirably adapted to determine these questions also." Anyone who is aware of the extent to which shipping and underwriting disputes are disposed of by arbitration, will appreciate the force of this suggestion. Arbitration has the advantage over proceedings in a court of law, that it is generally (though not always) less costly, and a more prompt method of arriving at settlement. But, on the other hand, there is a want of legal definition and exactness in the proceedings before arbitrators, the rules of evidence are not understood, or are disregarded, and much time is wasted in discussions upon points which could at once be overruled by a court of law. The attempt which was made some time since to obtain the assent of Parliament to the establishment of Tribunals of Commerce has not been renewed apparently this session, and has probably been abandoned; but the necessity which Mr. Rothery points out for the establishment of an office or tribunal for the settlement of disputes between merchants, shipowners and underwriters exists, and sooner or later must be taken into consideration by the Legislature. To revert, however, to the immediate subject of the paper before us, namely, the existing method of extending sea protests, we collect from the correspondence before us that the Board of Trade has shown every disposition to second the wishes of Lloyd's Committee, if they can be made legiti-

mately—as we believe they can be—the subject of legislation. Cases have, within a comparatively recent period, come before our courts of law which demonstrate the necessity for a complete change in the existing system of preparing protests. In the case of *Hossack v. Smith* above referred to, it appeared in evidence that the protest had been drawn up and corrected after communication with the assured, and had been altered at their suggestion. When this appeared on the trial the counsel for the assured abandoned the case, and submitted to a verdict. In the case of the *Knights Templar*, the captain, on landing at Weymouth, made a statement before the Receiver of Wreck, and the protest was deferred until he arrived at Glasgow, when it was drawn up, and made before the legal advisers of the assured; and it differed materially from the statement made before the Receiver. In the case of the *Walamo*, where the jury found that the ship was unseaworthy, the protest was drawn up by the solicitors of the owners, and it was stated in evidence by the mate that upon his objecting to sign it upon the ground that it was not correct, threats were made use of for the purpose of inducing him to do so. These cases and others are set out in this correspondence; they prove incontestibly the mischief of the existing system of preparing sea protests, and afford a complete justification, it must be admitted, for the action taken in this matter by Lloyd's Committee. Whether an attempt will be made to remedy the evil by introducing the required provisions in the Maritime Contracts Bill is a question which will shortly be decided; but such provisions, if introduced, would meet, we cannot doubt, with general support.

DISCIPLINE IN THE MERCHANT SERVICE.

SIR,—The cases of the *Lennie* and *Caswell*, taken in conjunction with the police magistrate's sentence upon the captain of the *Locksley Hall*, have caused the attention of those interested in shipping to be turned to the general question of discipline in the Mercantile Marine. We have it on the highest authority, that the magistrate's decision in the latter case was illegal; to my mind, his being right or wrong is equally conclusive against the law in its present form. If a captain were really liable to twenty-one days' imprisonment for doing what, in many cases, would be the only means of saving his life, and the lives of those with him, so much the worse for merchant shipping legislation; if not, it is a great pity that the law is so ambiguous that a man may be sent to prison

illegally by a police magistrate, and only released because a strong expression of public feeling compelled an appeal to a higher authority. Evidently a strong case is made out for a thorough revision of the laws relating to discipline at sea ; that some such revision will take place is pretty certain ; the only danger is, that the felt necessity for arming masters of merchant ships with the necessary power to put down mutiny may be the cause of extreme measures, which would be productive of as many evils as they would cure. Two things have to be borne in mind in framing discipline laws for merchant ships ; first, that the captain should be armed with as much legal power as is necessary to enable him to put down mutiny at its first beginning ; second, that a considerable number of shipmasters are neither fitted, by education nor training, for the exercise of arbitrary power unless those subject to them have a quick and ready means of appeal. The difficulty is, how to secure both these *desiderata* at the same time. It has occurred to me, that the difficulty might be met by providing for the association of others on board with the captain in the trial and punishment of offences, thus forming what might be called a Capstan-head Inquiry.

Most shipmasters, under the present system, even if they felt convinced that they had the right to do so, would hesitate to inflict punishment upon their own responsibility ; indeed, the man most fitted to act the part of a judge will generally be found the most reluctant to use his power, and rather than be bothered with prosecuting men for gross acts of insubordination on the return of the vessel, a master will let the matter slip ; thus men are induced to repeat such conduct on other occasions.

By the provision of a tribunal, in which the captain would be the chief, but not the sole authority, a rash man would be kept in check, and one inclined to timidity would feel that he was backed up, and would, under such circumstances, have the courage to act on his convictions ; and who can tell how many mutinies at sea might have been prevented if their incipient signs had been crushed out with mild, but firm determination ?

In placing upon paper a few thoughts that have occurred to me, I would not have it supposed that I am at all particular about detail : there are many ways in which my leading ideas might be carried out. With your permission I will describe one in detail.

Let the master have power of arrest subject to the speedy constitution of a tribunal for the trial of the offence. The captain of course would preside, and would have associated with him the first and second mates and one or two men to be elected by the crew, of course excepting the man or men under arrest. The trial should be held before the men, and a report of the proceedings entered in the log-book, and signed by the

members of the Court, in order that if the accused were not satisfied with the decision the case might be re-tried before the home authorities, or before the Consul at the first port reached, where out of the United Kingdom. Indeed, a record of all such trials and punishments should be delivered to the authorities at the first port touched at. Either a bare majority, or a two-thirds majority might have the power of inflicting punishment. If any member of the Court dissented from the opinion of the majority, he should be allowed to append any observations of his own to the report of the case. The chief responsibility must of course rest with the master, and he would have power in extreme cases to overrule the decision of the Court; but on any such occasion it would be necessary for the case to be re-tried before the Consul when, if the captain were found to be in the wrong, the responsibility for the improper exercise of power would rest on him, and he might be called upon to make reparation. The officers too, as having something to lose, if no more than their certificates, would feel a sense of responsibility for the decision arrived at through their vote, especially when such vote should be opposed to that of the representatives of the crew.

It is not, indeed, anticipated that by any arrangement whatever the government and discipline of the ship should in any sense be delegated to the men, but that the case of the men should be fairly represented, that any man punished should have a fair opportunity of knowing what he was punished for, and that the whole proceeding should be fairly recorded. This, I think, is the all-important security against unjust action on the part of the captain. The other evil which may be produced by the master being trusted with arbitrary power would also be obviated by the system proposed. If a man has to be tried, however the Court may be constituted, whoever the judges may be, he is less likely to be punished hastily than if the whole decision rests with one man. "A word and a blow and the blow first" would never be, as it possibly now too often is, a faithful summary of the method of maintaining discipline on shipboard.

I think further that a code might be framed by which, with some degree of latitude for the judgment of the Court, a prescribed punishment would follow any offence. In case of mutiny, or such like serious crime, the Court on board would have the power which justices have in important cases on shore, that is, of committal for trial, the case to be tried fully at the nearest port, and the man put in irons as the only sure means of detention.

An appropriate punishment for insubordination not amounting to mutiny would be to put the man in irons in his watch below, only letting him perform his ordinary duty during watch on deck. To place a man in confinement when he otherwise would be at work is obviously a great

evil in a merchant ship, and is in fact putting part of the punishment upon his shipmates.

It may be that much of what I have proposed would be found impracticable. I think, however, that the subject is of extreme importance, and that my leading idea is feasible. The question of discipline in the merchant service must soon come on for settlement; having secured for the sailors that they shall have seaworthy vessels in which to go to sea, the law must protect shipowners, and above all shipmasters and mates, against the fearful danger, worse than all the terrors of the sea, to which they are exposed, in having to deal with men who cannot safely be trusted, and yet whom they cannot safely put down. Let the captain fully understand his own powers, establish a system by which when in the right he may be absolutely secure against all after consequences, and then the first beginning of insubordination may be crushed, not by opposing passion and violence to passion and violence, but by indicating justice and preserving order and discipline.

W. H. N.

Cardiff, June 8th, 1876.

[We are much gratified at receiving the above letter which so strongly corroborates the suggestion thrown out in the first article in our June number, as to the desirability of establishing something in the nature of a judicial enquiry on board ship in cases where penal or other seriously responsible action has to be taken in regard to the persons of those on board. Our correspondent, who is a master mariner, has written in entire ignorance of the fact that in our June article Sir Travers Twiss had proposed a Ship Council, and it is satisfactory to find an able lawyer and a practical and experienced seaman both making the same suggestion entirely independent of each other.—ED.]

TAX LEVIED ON PASSENGERS LANDED IN THE UNITED STATES.—The Board of Trade have received information through the Foreign Office from Her Majesty's Minister at Washington, that the Supreme Court of the United States has recently decided, in the case of the North German Lloyd's Steamship Company, against the Bureau of Emigration at New Orleans, that it is a violation of the constitution of the United States, and, therefore, illegal for any particular State to exact from Masters of emigrant ships head-money on each passenger from a foreign country landed within its territory. The Supreme Court has also decided, that the masters of emigrant ships cannot be legally called upon to give bonds as security that none of the passengers they land shall become a burthen to the country.

THE NORWEGIAN DEEP-SEA EXPLORING EXPEDITION.

NEXT as the *Challenger* returns to England, after her absence of three-and-a-half years, an expedition starts on a similar quest, and equipped in like manner, though on a more modest scale, for a cruise of three summers. Its aim is to examine the region of sea-surface and bottom bounded by Norway, the Shetlands, Faroes, Iceland, the ice of East Greenland, Jan Mayen, and Spitzbergen. This expedition is sent out by Norway, many of whose inhabitants earn their livelihood in these seas, whose scientific men have started the idea, and brought it into a definite form, and whose Government and Storthing have accepted the proposal, and supplied the necessary funds with a clear recognition, not only of the wants of science, but of its importance for the national welfare.

A series of earlier expeditions, sailing from English, Swedish, French, and German ports, have investigated the physical and biological conditions of the boundaries of the above-named region, and Norwegian scientific men and sailing captains have added much to our knowledge of the nature of the coasts of the Arctic Seas. Still, the great sea basin itself remains unexplored; not a deep sounding, not a deep-sea temperature, not a dredgeful of mud, and hardly a magnetical observation is recorded from the vast region indicated above.

When Professor H. Mohn, Director of the Meteorological Institute of Norway, was studying the temperature of these seas, he could not but become painfully conscious of this fact, and the invention of the Casella-Miller's deep-sea thermometer, taken in connection with the brilliant results of the *Porcupine* cruise, brought out even more vividly the importance of a thorough scientific exploration of the sea lying west of Norway. His colleague at the University of Christiania, Professor G. O. Sars, had an equally strong conviction of the importance of biological researches in the same region. Accordingly, both together presented a memoir to the Minister of the Interior, in 1874, which concluded with a request for the organization of an exploring expedition of the seas west of Norway. The proposal was warmly received by the Minister, M. Vogt, who referred it to several official departments and scientific authorities in the country, with the result of a unanimous recommendation that the plan should be carried out.

The Government laid a definite proposal to the Storthing of 1875, and that body voted a sum of 20,000 Sp. dollars (£4,500) for the outfit and the first summer's expedition. For the second year, the Storthing of 1876 has voted 14,500 Sp. dollars (£3,200). The fact that an expedition leaving Norway in 1876 could still co-operate with the British

Arctic Expedition, by making simultaneous meteorological and magnetical observations, was a powerful inducement to accelerate measures, and the preparations for the expedition were commenced as soon as ever the Storthing had granted the money, by the Norwegian Government sending Captain C. Wille, of their Navy, to England, where he had the good fortune to see Captain Nares the day before the Arctic Expedition sailed. The most friendly and liberal assistance was afforded to Captain Wille by the Hydrographer Captain Evans, Dr. Carpenter, Mr. Gwyn Jeffreys, Mr. Scott of the Meteorological Office, and the authorities at Kew Observatory, in procuring instruments and apparatus for the expedition. Later in the season Captain Wille went to Bergen to find a suitable ship for the voyage, and the Government ultimately hired, at his recommendation, the steamer *Vöringen*, of 400 tons burthen, for the summer now ensuing. The vessel is reported to be a very good sea boat, and well adapted for the objects of the expedition. In the course of the winter and spring the various instruments required for the expedition were received, and the *Vöringen* was to receive her passengers at Bergen, and sail on the 1st of June.

The scientific staff of the expedition is as follows :—Professor Sars, Dr. Danielessen and Mr. Fride (biology), Captain Wille (soundings, deep-sea temperatures, magnetic observations), Mr. Svendsen (chemistry), and Professor Mohn (physics, sea temperature, meteorology, and magnetism). Captain Wille is in command of the ship, Lieutenant N. Petersen is first lieutenant, and Captain Grieg (the master) is second lieutenant. A draughtsman will also join.

The objects of the expedition can be divined from the above classification of duties. The principal instruments on board are, deep-sea sounding apparatus, Bailey's machine; lines; accumulators; a steam winch for sounding; dredges; trawl nets; surface nets; sieves, &c., for geological researches; water bottles (2 of Wille's construction, and 2 sent by Professor Ekman of Stockholm); hydrometers (obtained through the kindness of Professor G. Karsten in Kiel); filtering apparatus; cooking and gas-collecting apparatus (procured by the kind assistance of Professor Jacobsen in Rostock); deep-sea thermometers on the patterns of Miller, Negretti, and Dietrichsen (of Norway). Kew marine barometers; thermometers ordinary and for radiation; hygrometers of various patterns; sling thermometers; Daniell's hygrometers; rain-gauges; evaporation gauges (Professor Mohn's pattern); sea thermometers; Robinson's anemometers. The magnetic outfit consists of uniflars (English pattern), Barrow's dip circle, the Admiralty standard compass, and Fox's circle; buoys for current observation are also provided, &c., &c.

The expedition will first call at Utvær, a group of small islands at the

mouth of the Sognefjord, where the locality is free from local attraction, in order to make the necessary magnetical base observations. It will then enter the Sognefjord to test all the deep-sea gear in calm water, and at depths reaching to 600 fathoms.

As soon as this preliminary work is completed the *Vöringen* will put to sea and run along the deep channel, extending from the Skagerack to Cape Hal, in order to find the mode in which this channel proceeds northwards, to test the sounding appliances in the open sea, and to explore the banks off the coast of Romsdal. She will then call at Christiansund to fill up with coal, water, &c., and thence will sail westward to the "Lightning" channel between Shetland and the Faroes, extending the work of the *Porcupine* expedition in a north-easterly direction.

After calling at Thorshaven she will proceed to examine the bank between Faroe and Iceland, and its slope towards the Arctic Seas. At Reijkiavik magnetical base observations will be made; and it is proposed to go westward and northward of Iceland from that station. It is intended to run a line of soundings from a point north-east of Iceland to the Norwegian coast north of Drontheim. In this manner it is hoped to explore all the channels leading from the North Atlantic to the Arctic Sea, and also a broad region of this sea itself. Observations of the under currents will also be attempted. If time permits, after the return of the ship, the next object of research will be either a section towards Jan Mayen, or along the banks of northern Norway.

The expedition is calculated to be out for two or three summers, from June to September; magnetic base observations at Utvær being the concluding work for each year. In this wise it is hoped to effect a somewhat minute exploration of the sea, up to the latitude of Spitzbergen.

NAVIGATION OF THE ATLANTIC.—Mr. Archibald, the British Consul-General at New York, in his report this year, calls attention to the adoption by several steamship companies of separate routes, or lanes, for the eastern and the western voyages between the United States and Europe, and suggests that it is essential that all the lines should agree upon the paths to be adopted. In that case sailing vessels would avoid these lanes, and steamers would greatly diminish the risk of collision, and yet would have a far greater chance of rendering assistance to each other in case of distress.

THE PORT OF VENICE.

THE revival of the commerce of Venice, the glory of the Adriatic, has followed upon the fortunate events which have swollen the transactions of every port since the restoration of the kingdom of Italy. Upon the fall of the Republic, the heavy imposts exacted from the inhabitants by its conqueror, with the greater advantages granted to Trieste, induced many of the most opulent merchants to abandon their commercial pursuits and invest their capital in land, household and funded property, so far as to reduce the once famous city of the Lagoons to a condition subsidiary to Trieste. This state of affairs continued until the year 1831, when the concession of a free port led to the establishment of some foreign mercantile houses, and trade began slowly and gradually to improve. The subsequent long and arduous struggle sustained by the Venetians during the siege and blockade impoverished the population and discouraged the commercial classes, and the disfranchisement of the port on the return of the Austrians induced the shareholders of the commercial company to transmute it to a commercial bank. All direct importations of cotton and colonial produce thus ceased, and the trade of Venice fell back to its former state of languor and depression. The political convulsions that followed, and which the discontent of the Venetians at the result of the war of 1859 and consequent separation of Lombardy from Venetia tended greatly to foment, caused commerce to decline steadily from year to year till the conclusion of the war of 1866, and the cession of Venetia to the King of Italy.

The trade with Great Britain was, however, never affected to the same extent as that of other nations; and, in 1859, when the steam vessels of the Liverpool and London Line first touched at the port, a certain improvement at once commenced, which has continued to increase as steam communication has become more frequent. The progress made may be traced by the series of the Consular Reports, which show the value of the merchandise imported and exported under the British flags since 1861, when the Chamber of Commerce first compiled and published the yearly trade returns. From a retrospective survey, we find that the entries of British shipping in 1853 amounted to 23,502 tons, which had increased to 29,915 in 1861, when the value of the imports was £300,747. In 1871 the trade had still further increased, as the entries of vessels equalled 95,974 tons, with imports valued at £594,212; the clearances 96,599 tons, and the value of the exports £814,475, showing a total trade of £1,408,000 sterling. Consul Valentine mentions that, during this latter year, six lines of steamers were running between

the port and Great Britain, viz., three from Liverpool, and one each from Glasgow, Hull, and London. The Peninsular and Oriental mail steamers had likewise commenced to ply weekly between Venice and Alexandria, thus contributing to augment the commercial activity of the port, both in imports and exports. Increasing quantities of goods were brought from Egypt, India, China, and Japan, which, prior to the establishment of direct steam navigation to Alexandria, formed no direct export trade to the port. The importations had consisted hitherto of hides destined in great part for Genoa; China and Japan silks for Milan, and silk worms for the spinneries of Milan, Bergamo, and Brescia; divers quantities of gums, principally for Germany, and cotton for the same destination and Switzerland, besides other articles such as coffee, pepper, mother-of-pearl, &c. The goods exported by these vessels consisted of glass-bead and enamel, the manufacture of Venice, formerly shipped indirectly, mostly *via* England; fruit and deal boards, and timber for building, for Alexandria; butter, for Lombardy, Tyrol, and Bavaria, and other articles sent out as ventures to try the Eastern markets.

This increasing prosperity was checked by a visitation of cholera that lasted from the month of July to the end of September, 1873, during which period the quarantine restrictions caused a partial diversion of the transit trade from Venice. The effects were, however, but transient, since we learn that the united imports and exports for the year amounted to £3,048,623 sterling, a sum far in excess of any former return. The great increase was principally in the trade with India, China, and Japan, and there was also an augmentation in the direct trade with Great Britain. It must likewise be recorded that of the total value of merchandise imported from foreign ports amounting to 151,774,000 Italian livres, more than five-eighths were imported by British shipping, the greatest part of these imports having been purchased in Great Britain and in British Colonies. By these facts it is clearly shown that the progress of the trade of Venice benefits British commercial interests far more than those of any other nation.

The latest report by Consul Smallwood, derived from the statistical tables published by the Chamber of Commerce, shows in 1874, as compared with 1873, an augmentation of the number and tonnage of the ships which entered the port, and likewise in the weight of the goods imported, whilst the decrease in the amount of imports and exports was equal to £1,162,323 sterling. This diminution in the value of merchandise is attributable in some degree to the heavy stocks accumulated at the end of 1873, and to the temporary cessation of speculative operations. To these causes may be added the heavy custom-house expenses established by the new regulations on the landing and warehousing of goods imported, which discourage importers, and tend to the diversion

of the transit trade in favour of Trieste and Marseilles, thus depriving Italy of a portion of those advantages which she might otherwise expect from the new lines of steam navigation and accelerated railway communication with the interior countries of Europe. The attention of the principal Chambers of Commerce in Italy is now directed to this important subject, and it is hoped they will obtain from the Government some modifications of the present custom and regulations.

The commercial apathy that seized upon Venice whilst under Austrian dominion has been succeeded by the busy movement which is apparent to all who remember the former period. Since 1866 municipal administrations have succeeded each other ; but each, more or less, have worked for the improvement of their country. The enlargement of the thoroughfares, the maritime approaches, the Lido harbour, and public warehouses are being carried on. On the 8th of June, 1875, took place the inauguration of the opening of one of the dry docks in the arsenal, at which the Prefect, Sub-Prefect, and Vice-Admiral, Marquis del Carretto, with a numerous suite of officers, and a vast concourse of people, were present. The larger dock now remains to be completed, and it will take two years to effect this. The Venetian lagoons have now become the subject of the deepest inquiry as regards the means of rescuing them from the accumulation of sand and offal brought from this delta of rivers and streams. Signor G. Antonio Romano, a civil engineer, has published an elaborate treatise revealing the impending danger, and simultaneously with his appeal to Italian patriotism, the hope is fostered that the State will provide for the urgent work of distancing the Brenta to protect the port, whose very existence is compromised. Three lines of railway likewise engage public opinion. The first is to run from Venice, through Castelfranco, to Bassano ; the second is that of Adria, Chioggia, Loreo ; the third is that of Mestre, San Dona, Portogruaro. The bathing season is a source of considerable profit to the trade and hotels of the city. An influx of 1,000 visitors of the upper classes repays the municipality for the allurements provided. Few watering places can rival Venice, for independently of the attractions of her classic treasures, the Lido, the Royal Gardens, the Piazzetta, and San Marco are enlivened by the highest musical talent, and the Fenice is crowded every night to hear such artists as Albani, Marin, Maurel, and Bagagiolo. Foreigners will find resources in the hospitality of Venetian high life. Not thirty years since it may be safely asserted that there were not ten individuals in all Venice who could speak English ; this may still be said of the middle and lower classes ; but now every educated person, especially ladies, speak and write our vernacular fluently.

ROYAL OBSERVATORY, GREENWICH.

FROM the Annual Report of the Astronomer Royal, we extract the following, from which our readers will be enabled to gain some useful information, and to gather some idea of the work done at the Royal Observatory during the past year.

" ASTRONOMICAL OBSERVATIONS.—In the logical order of subjects of Meridional Observations, the first place is to be given to stars. The number of our fundamental stars or clock stars is 215, and whenever the sky is clear some of these are observed. When the weather permits, a long series is observed; no inferences being drawn for the correction of the right ascensions of fundamental stars unless the series extends through six hours. The circumpolar stars are observed when practicable, below the pole as well as above it, although these observations usually fall in different seasons. Other stars, in lists from miscellaneous sources, as stated in the four last introductions, are observed when opportunity serves.

" We have taken no part in the observations of zones.

" The sun, the interior planets, and the large exterior planets passing the meridian before 15^h, are observed every week-day; the small planets passing before 13^h are observed on week-days in the first half of each lunation (the other half being effectually secured under the administration of M. Le Verrier).

" The moon is observed, when visible, at meridian passage on every day, without any exception; and every opportunity is taken for observing her semi-diameter both in R.A. and in N.P.D., the proper days having been previously arranged by calculation.

" The number of small planets has now become so great, and the interest of establishing the elements of all their orbits so small,—while at the same time the light of all those lately discovered is very faint, and the difficulty and doubt of observation greatly increased,—that I have begun to think seriously of limiting future observations to a small number of these objects. A German society proposes to observe, in the next year, among the planets whose elements are known most accurately, a list of seventeen planets, including all which are sufficiently bright to be observed with few chances of mistake, and a sufficient number possessing the various characteristics of small and large inclinations and eccentricities, and proximity to Mars and to Jupiter. This proposal appears to me to be probably worthy of attention at Greenwich.

the altazimuth, the moon and corresponding stars have been without intentional loss of a day on which she was visible.

The number of observations for her diameter (a fundamental element for reduction of every observation) is scarcely sufficient. I hope to increase them in future.

"The number of observations made from 1875, May 20, to 1876, May 8, is given in the following statements:—

"With the transit-circle:

Transits, the separate limbs being counted as separate observations	...	...	...	...	...	3,485
Pairs of observations of the nearly vertical wires of the reversed telescopes	...	...	...	...	...	288
Reciprocal observations of the nearly vertical wires of the reversed telescopes	...	...	...	...	...	334
Reflexion-observations of the central wire	...	...	...	...	...	363
Circle-observations, each requiring a separate reading of the six, four, or ten microscope-micrometers	...	...	...	...	...	3,374
Reflexion-observations of the zenith-distance wire (included in the number of circle-observations)	...	...	...	...	...	363
Reflexion-observations of stars (similarly included)	...	...	...	...	...	368

"With the reflex-zenith-tube:

Pairs of observations of γ Draconis, the instrument being reversed between the observations	...	...	...	...	...	39
Single observations	...	...	...	...	...	5

"With the altazimuth:

Azimuths of the moon and stars	...	...	...	...	...	791
Azimuths of the collimating-mark	...	...	...	...	...	386
Zenith-distances of the moon	...	...	...	...	...	367
Zenith-distances of the collimating-mark	...	...	...	...	...	360
Zenith-distances of stars for clock-error	...	...	...	...	...	2

"The number of complete observations of the moon near to her conjunction with the sun is:—

"On days when the moon passed the meridian between 21 ^h and 22 ^h mean solar time	...	...	...	...	...	4
"	"	between 22 ^h and 23 ^h	...	...	...	2
"	"	between 23 ^h and 24 ^h	...	...	...	0
"	"	between 0 ^h and 1 ^h	...	...	...	0
"	"	between 1 ^h and 2 ^h	...	...	...	2
"	"	between 2 ^h and 3 ^h	...	...	...	5

"The following comparison shows the number of places of the moon observed with the transit-circle and altazimuth respectively:—

With the transit-circle, 88, or 7·3 per lunation.

With the altazimuth, 180, or 15·0 per lunation.

“ The following is the number of measures of the moon's diameter :

With the transit-circle, 4 in R.A., 7 in N.P.D.

With the altazimuth, 5 in azimuth, and 17 in zenith-distance.

“ The observations of occultations of stars by the moon have been 9 in number ; namely, 6 disappearances and 3 re-appearances. Of Jupiter's satellites, 13 phenomena have been observed. The instruments usually employed for these observations, sometimes simultaneously, are the Great Equatoreal and the Sheepshanks Equatoreal.

“ The partial eclipse of the sun in September last was observed in the same manner as that of the preceding October, by measures of intervals of cusps, in R.A. and N.P.D.

“ Availing ourselves of an Ephemeris of Saturn's satellites published by Mr. Marth in the *Astronomische Nachrichten*, we have made measures of their distance and direction from the planet's body on the following days, included between 1875, September 14 and November 15 :—

Japetus on 14 days.

Titan „ 20 „

Rhea „ 20 „

Dione „ 13 „

Tethys „ 13 „

“ REDUCTION OF ASTRONOMICAL OBSERVATIONS.—On May 8 the reductions were in the following state :—

“ For meridional transit observations :

Observed transits are corrected for instrumental errors, and clock-times of transit over the true meridian are prepared, to	... ..	1876, April 29.
Clock errors and rates are applied, and apparent right-ascensions from observation are formed to	... ..	April 28.
Reductions of apparent places of stars, to mean places on January 1 are prepared, to	... ..	April 28.
The two last-mentioned elements are combined, to form mean R.A. on January 1 of stars, from daily observation, to	... ..	April 28.
Mean solar times of observation of sun, moon, and planets, are prepared, to	... ..	April 28.
Corrections for defective illumination of the limbs of moon and planets are prepared, to	... ..	April 28.

“ The personal equations in observation of transits during the year 1875 have been investigated ; there is little change among the principal observers since 1874.

"By comparison of the results for R. A. of circumpolar stars as observed above the pole and below the pole, we do in fact check two different elements; one is, the general accuracy of the system of the corrections for collimation; the other is, the general correctness of the assumed difference of R. A. between opposite groups of stars. And I am convinced, by examination of the results to the end of 1875, with this view, that there is no sensible or certain error in either of these elements.

"For observations with the meridional circle:—

Means of readings of microscope-micrometers are taken, and corrections are applied for defects of micrometer-screws, and for reading of telescope-micrometer, error of graduation, flexure, inclination of wire, and zenith point, in order to form apparent zenith distances, to	1876, April 29.
True geocentric north polar distances are formed by application of refraction, parallax, and colatitude to	April 29.
Reductions of apparent N. P. D. of stars, given by daily observations, to mean N. P. D. 1875, January 1, are applied to	March 18.
Corrections are applied for defective illumination of limbs of moon and planets, to	April 29.

"No alteration has been made in the refractions, which are the same as those introduced in 1868.

"The corrections for error of micrometer-screws have been applied to the N. P. D. of all stars in the star-ledgers and catalogue both for 1874 and 1875, and to the N. P. D. of all objects in the planetary results for 1875.

"The R—D investigation has been re-computed for 1874, after applying these corrections; the value found differs little from that previously deduced. The correction for the error of the micrometer-screws during the year 1874, and of a small mistake in computation, has slightly altered the inferred value of the co-latitude from $38^{\circ} 31' 21'' \cdot 35$, as stated in the last Report, to $38^{\circ} 31' 21'' \cdot 52$. The labour of correcting reductions for the error of micrometers has greatly retarded the reductions for 1875; and I am not able at present to state the 1875 co-latitude.

"The calculations for position of ecliptic and for errors of planetary tables are not yet completed for 1875.

"Preparations are begun for forming a catalogue of stars, based on all the observations commencing with 1868. I have not decided whether it shall terminate with 1875 or with 1876.

"The observations of γ Draconis with the reflex-zenith-tube are reduced to the close of 1875.

"The following is the state of reduction of the Altazimuth observations:—

For azimuths, true azimuths are formed by the combination of mean of microscopes, correction for level, collimation, and azimuth-zero, to ...	1876, March 25.
For zenith-distances, true Greenwich zenith-distances, corrected for refraction and parallax, are formed, to	April 23.
Corresponding tabular azimuths and zenith distances are formed, to	April 23.
Apparent errors of moon's tabular R. A. and tabular N. P. D. are computed, to	March 25.
Apparent errors of moon's tabular longitude and tabular latitude are computed, to	March 25.

"The observations of the occultations of stars by the moon are completely reduced.

"The observations of the solar eclipse of 1875, September 28-29, made with the great equatoreal, are completely reduced in the same manner as those of the eclipse of 1874, adopting corrections found for the semidiameters of the sun and moon from preceding eclipses. It was possible to observe this eclipse with the meridional instrument, and for reduction of that observation the semidiameter of the sun found to apply to that instrument was employed.

"The micrometer measures of Saturn's satellites made during the past opposition with the great equatoreal have been completely reduced."

"SPECTROSCOPIC AND PHOTOGRAPHIC OBSERVATIONS.—The sun's chromosphere has been examined with the spectroscope on thirty days, and the prominences mapped out, whenever any where found. During the winter months this work has been almost entirely interrupted by bad weather and the low altitude of the sun, as well as by the necessity for making the various modifications in the spectroscope, mentioned under the head of astronomical instruments. The average number of prominences has been very small during the past year, but a very marked increase both in number and size is shown in the recent observations.

"Some measures of the width of the D lines on different parts of a sun-spot, and a set of measures of the width of the principal Fraunhofer lines, have been taken; the latter with the powerful spectroscope kindly lent by Mr. Spottiswoode.

"One hundred and twenty-six measures have been made of the displacement of the F line in the spectra of 20 stars as compared with

hydrogen, 15 of the displacement of the *b* lines in the spectra of 6 stars as compared with magnesium, and two of the displacement of the D lines as compared with sodium. Sixteen measures of the F line in the spectrum of the moon as compared with hydrogen give a displacement corresponding to a motion of less than two miles a second, which seems to show that the method of comparison now adopted is free from systematic error; and this is supported by the manner in which motions of approach and recession are distributed among the stars examined on each night of observation. The results recently obtained appear to be on the whole as consistent as can be expected in such delicate observations, and they support in a remarkable manner the conclusions of Dr. Huggins, with regard to the motions of those stars which he examined.

"The single-prism-spectroscope has been occasionally used for mapping out the spectra of planets and stars. The remaining spectroscopic work has consisted of measures of the Fraunhofer lines in the solar spectrum, and of the width of the hydrogen, magnesium, and sodium lines with varying width of slit, for determination of the scales to which the various measures have been referred.

"Photographs of the sun have been taken with the photoheliograph on 182 days, and of these 350 have been selected for preservation. A large number of these show a complete absence of spots, though faculæ are commonly present. On one of the photographs, which was accidentally exposed while the drop-slit was being drawn up, there appears to be a faint image of a cloud-like prominence close to the sun's limb, though the exposure probably only amounted to a fraction of a second. A prominence of unusual brilliancy was seen with the spectroscope about the same time and in the same position with reference to the sun's limb.

"Photographs of some double stars and of the moon have been taken with the great equatoreal, and some trials have been made in photographing the solar spectrum and that of magnesium."

"REDUCTION OF SPECTROSCOPIC AND PHOTOGRAPHIC OBSERVATIONS.—All observations with the spectroscope have been completely reduced, the measures of lines in the spectra of elements being converted into corresponding wave-lengths, and the observations of displacement of lines in the spectra of stars being reduced so as to exhibit the concluded motion in miles per second, after applying a correction for the earth's motion.

"As regards the photographic reductions:—

"All groups of sun-spots and faculæ have been numbered, and the dates of their first and last appearances entered up to the present time. Areas of spots have been measured, in duplicate, to photograph 775 on 1875, September 16, and the measures have been reduced to millionths of the sun's visible hemisphere, to 1874, December 31.

"Areas of faculæ have been measured to photograph 777 on 1875, September 27, and the means have been reduced to millionths of the sun's visible hemisphere, to 1874, December 31.

"The sums of the areas have also been taken for each group and for each day."

"**MAGNETICAL AND METEOROLOGICAL OBSERVATIONS.**—The observations under this head consist of continuous photographic records with the self-registering instruments, and of eye-observations with the three magnetometers taken four times each day, for determination of the zeros of the photographic curves, together with occasional observations of the other magnetic instruments for absolute determinations, and readings of the barometer, thermometers, and rain-gauges at certain hours of the day.

"A circumpolar star is observed with the theodolite for zero of azimuth once or twice a month; the absolute measure of horizontal magnetic force is determined with the unifilar instrument once a month; and the dip is usually observed two or three times a week. Since the beginning of this year the last-named observation has been regularly corrected for the small outstanding error of level of the instrument, which is, however, always left adjusted to verticality as closely as possible. In the course of the year several thermometers have been compared with our standard, at the request of the Warden of the Standards and of Dr. Hime."

"**REDUCTION OF MAGNETICAL AND METEOROLOGICAL OBSERVATIONS.**—The theodolite observations of stars, giving zeros of azimuth for the declination-magnet, are reduced to the last observation, and the absolute declination deduced to the end of last year. The telescope observations of the horizontal-force-magnet are reduced to the present time; those of the vertical-force-magnet to December 31. These determinations give the base-lines for the ordinates of the photographic curves.

"The time-scales for the declination, horizontal force, and vertical force, as well as for the earth-currents, are complete to the end of 1875, and new base-lines for the declination are laid down for 1875; the base-line values for the horizontal force are entered on the sheets to the end of last year. The hourly ordinates of the curves of declination are read out for 1875; those of the horizontal force and vertical force are not yet done.

"Taking the scale of magnetic disturbance which I have adopted in memoirs in the philosophical transactions, the number of disturbed days in 1875 is only two. For these days the ordinates are to be measured for all the salient points of the curve; no further reduction has been made of these numbers since 1857. For the other days pencil curves are being drawn, smoothing down the principal inequalities, and their

ordinates are being measured for every hour. These measures will be used to form tables of diurnal and other inequalities to the end of 1875.

"The absolute measures of horizontal magnetic force are prepared to the end of 1875; the dips, as usual, are reduced to the last observation.

"The following are the principal results for 1875:—

Mean westerly declination (approximate)		19° 21'
Mean horizontal force	...	{ 3·893 (in English units).
		{ 1·795 (in metric units).
Mean dip	... ...	{ 67° 41' 5" (by 9-inch needles).
		{ 67° 42' 15" (by 6-inch needles).
		{ 67° 43' 34" (by 3-inch needles).

"No measures have been made, and no theoretical results deduced, from the photographic curves given by the earth-current wires in their present position.

"The following is the state of the meteorological reductions:—The eye observations are corrected for instrumental errors, and the dew point and degree of humidity are computed to the present day. Time-scales and the values of the base-lines are entered to the end of last year.

"The vane of Osler's anemometer made, in the year 1875, 11 complete revolutions in the positive direction, N., E., S., W.

"I alluded in the last Report to the reduction of the photographic records of readings of dry and wet thermometers from 1848 to 1868, and to the arrangement of the results in various tabular divisions, and as connected with various meteorological conditions of the atmosphere. This work had been effected under the superintendence of Mr. Glaisher. My examination of the abstracts of the results was long delayed by the unceasing pressure of employment. I have at length examined and arranged them, and, with the assistance of Mr. Ellis, have prepared an introduction. In the progress of the work, other subjects of examination have presented themselves. One is the reduction of the photographic records of the barometer with reference to diurnal inequality; another is a similar reduction with reference to lunar tide. These are advancing, and will be finished, I hope, in the present year.

"The examination of the readings of the deep-sunk thermometers from 1846 to 1873 has exhibited some laws which had been sufficiently established before this time, and some which were less known. Among the former were the successive retardations of seasons in successive descents, amounting to about four months at the depth of 25 feet; and the successive diminutions of the annual range of temperature. Among the latter is the character of the changes from year to year, which the great length of this series of observations brings well to light. It is found that from year

to year the mean temperature of the surface for the year, varying by ~~three~~ or four degrees of Fahrenheit, follows in its changes the mean temperature of the atmosphere for the year; and that the changes of annual temperature are propagated downwards, retarded in phase and diminishing in amount of change, in the same manner (though probably not following the same law) as the season changes. The inference from this is, that changes of temperature come entirely from the exterior, and in no discoverable degree from the interior; an inference which may be important in regard both to solar action and to geology.

"I am engaged in tracing the possibility of relation between the irregularities in the annual temperature and the irregularities in the annual produce of corn, but have not yet arrived at any perfectly satisfactory results."

"CHRONOMETERS, TIME SIGNALS, REGULATIONS OF EXTERNAL CLOCKS, OPERATIONS FOR LONGITUDE.—There are now in the chronometer room 161 chronometers, of which 128 are box-chronometers, 25 pocket-chronometers, and 8 deck-watches.

"Of these, 47 are the property of chronometer-makers, being placed here on the annual competitive trial; the others belong to the Government, and have been either returned from service for examination and repair, if necessary, or are awaiting issue to ships of the Royal Navy after having been repaired by the maker. All such chronometers are compared at least once a week, and at some time during their period of rating are tried for at least three weeks in a temperature of nearly 100° Fahrenheit. The competitive chronometers, as well as any Government chronometers which appear to require it, are compared every day; they undergo two trials in heat for periods of four weeks each, and are also rated in different magnetic positions.

"The supplementary compensation mentioned in the last Report has been applied with success to a number of chronometers, and in future all chronometers sent into the annual trial are to be so fitted. From experiments which have been made with one of the chronometers, to which the compensation-piece has been applied, it is found that the final adjustment of the compensation can be made with certainty at the Observatory; and it will thus be unnecessary to return a chronometer to the maker, when, as has happened in a large proportion of cases lately, there is a slight error in the compensation.

"The first six chronometers in the competitive trial of last year were on the average somewhat superior to those of 1874, the chronometer at the head of the list in particular being a very fine one.

"The Greenwich time-ball has been regularly dropped automatically on every day throughout the year, with the exception of 7 days,

when the violence of the wind made it imprudent to raise the ball, and of 2 days when there was accidental failure.

"The Deal time-ball was not raised (on account of high wind) on 10 days, and was not dropped, or was erroneously dropped (by telegraph signals), on 17 days. On 328 days it was dropped correctly, though on 52 of these the galvanic current was too weak to release the trigger without the assistance of the attendant, principally from the defective insulation of the wire, which has now been to a great extent overcome by increase of the battery power.

"No change has been made in the system of time-signals, which are distributed to all parts of the country by means of relay-action at the Central Office of the Post Office Telegraphs.

"The regulation of the Lombard Street clock by galvanic current from Greenwich has worked satisfactorily during the past year; and the Westminster clock has maintained its high character, its error having been below one second on 273 days during the year to which this Report refers.

"No further action has been taken in the proposed telegraphic determination of the longitude of the Dublin Observatory. Recently Professor Oppolzer has proposed to determine, by direct telegraphic communication, the longitude of Vienna, and has arranged a very complete plan of operations for this object, which I hope will be carried out shortly."

"Extraneous Work:—

"I first advert to the operations connected with the Transit of Venus, carrying on the history from the last Report.

"The observers all returned in the course of the last summer, and, I am happy to say, without death or accident. I have to lament, however, the subsequent decease, on the West Africa station, of Lieut. C. Corbet, R.N., an officer who had my highest confidence. The chiefs of stations, and other observers, passed some time at Greenwich, engaged in the registering or recording of their observations; but all have now departed, with the exception of Captain Tupman, R.M.A., who is charged with the entire work of reduction, and with the superintendence of four junior computers within the Observatory, and several external to it; and of Lieut. Neate, R.N., who has nearly completed the Rodriguez reductions. The instruments also have all returned, with the exception of those from Kerguelen, which I have already mentioned as being lodged at Simons Town. At the moment of issuing this paper I learn that the Admiralty have taken efficient measures for the prompt return of these instruments.

"In the astronomical part of the reductions, there has been great labour and difficulty in the determination of local sidereal times; some books of observations required extensive transcription; some instrumental errors are still uncertain; the latter determinations have perplexed us so much, that we are inclined to believe that, in spite of the great facilities of

reduction given by the transit-instrument, it would be better to rely on the Altazimuth for time-determinations. Generally, however, the local times are completed, except in Owhyhee, and the greater part of clock-comparisons and chronometer-comparisons are reduced. In the geographical longitudes little advance has been made; the errors of the Moon's tabular place, as determined at four observatories, are under consideration. The Greenwich times in District A (Egypt) were, however, determined long ago (by use of the long telegraph wire, as explained in the last Report). Various printed forms have been prepared for the computations of tabular local parallaxes, &c., and a complete ephemeris of the geocentric places, parallaxes, and semi-diameters, for every ten seconds of Greenwich sidereal time through the transit, has been printed and circulated.

"In the photographic part, I have confined my attention entirely to measures of the distance between the centres of the Sun and Planet; and, using an instrument arranged specially for that purpose, have measured on the photographic images the distance of the four limbs in the line passing through the centre of the sun's disk, by reference to a scale of millimetres with microscopic-micrometer. The first operation was to ascertain the corrections due to the small errors of the subdivisions of the millimetre scale. The next more complex step was—(1) to photograph Mr. De La Rue's scale by planting the photoheliographs in succession at a place distant about 1,700 feet; (2) to examine the errors of division of Mr. De La Rue's scale; and thus (3) to measure the distortion of the photographic images. The measuring of the photographs of the Sun and Venus was, logically, the third operation. All these were done by Mr. Burton. The first part is entirely reduced, the second is partially reduced, the third is not corrected for the errors of scale and distortion. When finished, this operation will give measures in terms of the sun's apparent semi-diameter. The photographs taken in India and Australia have been received, and have been measured with the same instrument; and I hope to make arrangements for including all in the same general system of reductions.

"The point to which I next refer is the progress of the Numerical Lunar Theory.

"With a repetition of grant from the Treasury, I have usually maintained four junior computers on this work. The progress, though considerable, has not been so great as I had hoped. The retard has arisen from two causes, both due to the excessive personal pressure upon me during the whole year.

"The first is the necessity of extending the calculations by one or two decimals. The necessity for this, in some degree, has been perceived from the first, but it was found imperative, on more careful consideration, to include a greater number of terms than I had anticipated.

"The second is that at times, when I could not watch every step, my computers, unacquainted theoretically with the arithmetic of sines, had committed some serious errors. Their numerical computations are, generally speaking, correct; so that the restoration to proper order will not be very difficult.

"The magnitude of these calculations, intended to secure exactitude to $10^{-7} = 0''.02$, may be judged from the statement that in one of the terms, on the perturbed side of the equation, the number of arguments of inequalities is about 270, and that this is produced by repeated multiplications of one series of the same class by another series of the same class.

"In the perturbing side of the equations, considerable progress has been made. I am not able yet to assert its immunity from error.

"The treatment of the symbolical corrections has not advanced.

"The personal occupation of my time, produced by references on scientific matters extraneous to the Observatory, has been in the last year somewhat greater than usual."

GENERAL REMARKS.—The year for which the history of the Observatory is given in the preceding Report has been one of unusual labour. The demands which this implied upon the efforts of the officers of the Observatory have been met in the best spirit. And I am bound to regard with gratitude, on the part of the Observatory and myself, the orderly and zealous conduct of every assistant connected with the Observatory.

"This labour, however, is not without fruits to counterbalance it. Faults of a totally unsuspected character have been detected in one instrument; and, I trust, have been perfectly corrected. After the warning which they have given, the probability of a recurrence is greatly diminished. In another, the methods for an important instrumental adjustment have been facilitated, and thereby rendered more certain of frequent application. In a new class of instruments, the experience in the numerous causes of error and the practical forms of remedy has given to the Chief Assistant, who principally has superintended the use of those instruments, an accurate acquaintance with them, possessed by few other observers. In the theory which I am myself promoting, though time has been lost, accuracy has been gained. Material matters, such as the care of manuscripts and library, and of the still lower subjects of buildings and grounds, have not been neglected. Friendly communication has been maintained with other Observatories.

"Upon the whole, I trust that the present position of the Observatory will be regarded by the visitors as satisfactory.

"G. B. AIRY.

"Royal Observatory, Greenwich, 1876, May 11."

S C U R V Y.



ALTHOUGH it is proposed in this article to discuss scurvy only so far as the disease affects those who live and work afloat, it is better that the malady should be designated as above, than called, in nautical parlance, Sea Scurvy, for the latter specific term is eminently misleading, because the disease, whether it exists afloat or ashore, is due to the same causes, and runs precisely the same course. But scurvy, unless under very exceptional circumstances, is, on land, now almost unknown, and hence occupies no prominent position in standard medical works. It is therefore humiliating, whether considered in a scientific, official, or commercial aspect, that we should once and again have to compel the attention of our readers to the continued recurrence of this disease afloat, as a question of very considerable importance in relation to the safety of ships at sea.

It is not necessary to recapitulate at length the history of scurvy. It swept over the Royal and Mercantile Fleets of this country continuously and persistently until the middle of the eighteenth century, so that it was not unnaturally classed with the contagious and infectious diseases. In contrast to this miserable state of things, however, it is proper to record that Captain Cook went round the world, kept his crew in health for three years, and eventually returned, having lost only one man from some chronic disease. Between 1770 and 1790, Lind, Blane, and others, introduced the use of fruits and succulent vegetables into the Royal Navy, with very marked success. Limes and oranges were extensively used, and it was eventually found that lime or lemon-juice was the best and most convenient antiscorbutic that could be obtained for general use afloat. The systematic adoption of these juices was at once sanctioned by the Lords of the Admiralty, and from that time scurvy has been practically an unknown disease among the crews of our fighting ships. The advantages of the lime-juice system were so conspicuously apparent, that a clause was inserted in the Merchant Shipping Act of 1854, compelling all merchant ships proceeding on long voyages (the limits of which were specified) to carry lime or lemon-juice, so that half-an-ounce might be issued every day to every member of the crew. There is little doubt that the enactment did a great amount of good, and it is a fact that, partially in consequence of its operation, and also on account of the general improvement in quality of diet and berthing, scurvy diminished in extent and severity. But ten years after the passing of the Merchant Shipping Act, 1854, and in spite of a great average decrease in the length of Indian and Australian

voyages, it was found that scurvy was again slowly, but surely, on the increase, and in 1866 more than 100 cases were admitted into the *Dreadnought* hospital ship, at Greenwich. The cause, as it appeared after various and prolonged investigations, was not far to seek. The so-called lime and lemon-juice bought by shipowners for the use of their crews was found, in very many cases, to be either adulterated in a superlative degree, or a mixture containing no real juice at all. The Merchant Shipping Act of 1867 included, therefore, several "antiscorbutic" clauses that classed in effect lime and lemon-juice as bonded stores, provided for their official examination, and for their subsequent admixture with a small per centage of alcohol, so as to ensure preservation. It suffices to say that, between 1868 and 1875, the cases of scurvy landed in the ports of the United Kingdom decreased at the rate of from 75 to 80 per cent. It is right, however, to infer that part of this decrease may have arisen on account of the gradual substitution of steam for sailing ships, the opening of the Suez Canal, and the vast increase in quantity and variety of preserved provisions. It is, therefore, very irritating to find that during the past eighteen months ships on the Mercantile Marine Register of the United Kingdom have arrived at both home and foreign ports with (literally) cargoes of scurvy on board, and that many vessels, from this cause alone, have been seriously disabled and endangered. Thus much as to the history of the disease, brought down to the present date.

The causes of scurvy were for some long time a vexed question among doctors; and it was not until the second quarter of the current century that any scientific information on the subject was collected. But observations made since that period, especially during the last famine in Ireland, the Crimean War, and the siege of Paris, all tended to confirm the opinion *that absence of vegetable diet is the one constant factor in the production of scurvy*. The disease may not, and indeed does not, always occur when vegetables are not eaten; but it may be safely asserted and maintained that when vegetables of good quality are taken, scurvy does not appear. A careful perusal of various papers on the subject by Parkes, Lind, Budd, Leach, Buzzard, and others, shows clearly that the direct or exciting causes of scurvy are absence of vegetable diet in any form, and bad quality of animal food. The disease is in fact essentially one of perverted or of defective nutrition. Something (the exact constituents of which are still undetermined) wanted to maintain healthy vital action is not forthcoming, and so, as healthy blood cannot be manufactured, the organs and framework fed by that blood speedily get into a bad state of repair, and thus go to produce unseaworthy sailors. It is not necessary to go beyond these two causes, for, as we believe, one or other of them will be found to exist whenever

outbreaks of scurvy occur, either afloat or ashore. Many other secondary or predisposing causes may, and perhaps do, aid the progress of the disease, when excited by one of the two above-named conditions. Dirt, wet clothes, idleness, venereal, bad water, and "scouse" are all quoted as *direct* causes of scurvy. Dirt, of course, as well as wet clothes, will assist the progress of this as well as most other maladies; but if idleness propagated it materially, scurvy would be one of the commonest disorders in every quarter of the globe. Some varieties of venereal disease are often (and pardonably) mistaken for scurvy, and *vice versa*, and there is no doubt that the former, under favouring circumstances, predisposes to the latter. There is no scientific or other evidence on record that goes to prove anything against bad, rain, or condensed, water as a direct factor in the production of scurvy. Sailors frequenting the ports of Calcutta, Hongkong, Bassein, Akyab, Whampoa, and, to a less extent, Bombay, have been sufferers from dysentery in great numbers; but a decrease of this disease has always followed on an improvement in the water supply. The "scouse" theory is one invariably produced as a sort of refuge for the destitute, when an insufficient (and on account perhaps of unavoidable circumstances an incomplete) inquiry has failed to elicit the real source of an outbreak of scurvy on board ship. Most of our readers know that "scouse" is a nasty mixture, composed of cook's slush, biscuit, and water, to which minced salt meat is often added. Biscuit, fat, and water have, according to scientific testimony, no scorbutic properties at all; and the meat, if bad in quality, would cause scurvy whether eaten *en masse*, or as a constituent of scouse. Moreover, as most of our readers again know, scouse is continually eaten on long-voyage sailing ships by at least three-fourths of the crew; so that, if this greasy but evidently favourite article of diet directly provoked scurvy, the disease would exist on a very large proportion of ocean-going vessels. But, happily, it is not so; and though shipmasters are perfectly justified in discouraging what appears to us to be a gross and dirty kind of food, it is a mistake, on scientific and practical grounds, to credit "scouse" *per se* with scorbutic properties.

It has been occasionally alleged or suggested that special cargoes, as guano, nitrate of soda, &c., may have excited the production, or aided the progress of, the disease. But these hypotheses are not supported by any positive evidence. It has been ascertained from official sources, and from inquiries instituted by the Medical Officer of Health for the port of London, that ammonia is by no means a scorbutic agent, that scurvy does not specially prevail in guano ships (although one or two outbreaks have occurred during the past five or six years), and that the labourers employed in the Victoria (London) Docks in discharging these cargoes enjoy exceptionally good health.

Presuming that our readers accept the evidence given above, and the deductions therefrom, let us consider how far under present conditions scurvy may be classed as a preventable or even excusable disease in the British Mercantile Marine. Our observations of course relate to long voyage sailing ships only, excluding coasters, all steamships, and all vessels engaged in the Home and North Atlantic trades (as they do not come within the operation of the "antiscorbutic" clauses of the Merchant Shipping Acts). We have thus to deal chiefly with whalers, small vessels trading to the West Coast of Africa, the West Indies, Rio, and other ports on the North-East Coast of South America, and large ships trading to India, China (including still some few tea clippers), Japan, Australia, New Zealand, and the western ports of North and South America. Whaling ships very seldom bring home cases of scurvy because they are carefully managed, get fresh food tolerably often, and carry a medical officer. The average passage of vessels to the West Coast and the West Indies varies from 25 to 40 days, and that of all the rest from 70 to 150 days. As to the former class, it is abundantly evident that, with the most ordinary care, fresh vegetable food of some kind or other can be easily provided for the whole of the outward passage, and in most cases for the entire voyage. Many varieties of preserved meats, soups, and vegetables, may now be purchased good in quality and very palatable when properly cooked. That such articles are not only palatable, but nutritious, may be assumed by the fact that some of them are now used extensively in the metropolitan hospitals, and at many public institutions in the Kingdom in which plain cooking is the rule. Fresh potatoes, carefully packed with molasses, will keep for many weeks in good order, and butter is now a very generally adopted addition to the ordinary scales of diet. Salt beef and pork of good quality are often costly articles in the market, and it is no exaggeration to state that a scale of diet varied with some of the viands above mentioned might be framed, cheaper in every way to the owner than the old exclusively salt meat scales still in use (presuming, of course, that the latter dietary is good of its kind). We do not care in this place to advocate specially the issue of rum or other form of grog; but there is no doubt that alcohol has distinct antiscorbutic properties, and that an occasional ration, with close-reefed topsails, or under other exceptional circumstances, is generally welcome and by no means harmful to the sailor. Since the Merchant Shipping Act of 1867 came into operation, the master has been compelled to serve out to each of his crew daily, mixed with water and sweetened, an ounce of lime and lemon-juice. And, finally, the shipowner can, if he pleases, subject his men before signing articles (according to the terms of a permissive clause in the Merchant Shipping Act, 1867), to a medical

examination, so that the master shall at all events start fair with a sound and healthy crew.

We place these facts before our readers, and ask them to decide whether, under such circumstances, it is creditable that British ships should enter home and foreign ports, not with isolated cases of sickness, but with a large proportion of their crews so disabled by scurvy as to be totally unable to help themselves or to work the ship.

Without searching for the results of recent official investigations (which results, by the way, have not yet been published) does it not show that one or more of the following conditions existed: (1) that meat of bad quality was served out; (2) that no fresh vegetable messes were given; (3) that preserved provisions were not given, or were, if given, so badly cooked as to be uneatable; (4) that the supply of lime or lemon-juice failed, or was carelessly administered? We submit that one or other of these conditions would be found to exist in all the recent importations of scurvy that have occurred, and we maintain, that, in the present day, and even under present legislation, all these conditions are preventable.

When the Merchant Shipping Bill that has recently passed through the House of Commons was being discussed in Committee, a great deal was said by Mr. Thomas Brassey and others about dietary scales, and it was urged forcibly by several members that these scales should be framed and regulated by Act of Parliament. There can be little doubt that lime and lemon-juice are at the present time used only to neutralise the ill-effects of a diet deficient in nutritive properties, and that if food were given to sailors in the sort of variety above indicated, the so-called "anti-scorbutic" clauses of the Act might be expunged altogether. It remains to be seen, however, whether Parliament will choose to legislate for scales of diet, medical examination of seamen, and inspection of food and medicines, all of which would of course tend directly or indirectly to extinguish scurvy, but would, at the same time, hamper with more official supervision all classes of shipowners alike.

Recurring for an instant to administrative details, we may remind our readers that few matters are so important, though so little thought of, as the choice of a decent ship's cook. It is a surprising fact that, even up to the present time, and in vessels carrying from twenty to thirty fore-castle hands, any person (particularly if a man of colour) is accepted on his own certificate for, or promoted to the post of, cook, and as a consequence the filthy condition of the galley and its belongings, as well as of the genius who presides therein, is sometimes appalling. No cook can of course send a good joint to table when he is provided with bad and stinking meat, but an ignorant and dirty individual will so spoil good viands as to make them unpalatable, and at the same time partially destroy them as wholesome articles of food. These remarks apply quite as much to the

use of preserved meats and vegetables as to the old salt rations, and the clumsy way in which the former are generally prepared and cooked on board ship has much more to do with their rejection by many sailors than the quality or variety of the food itself.

An idea prevails to the effect that coloured seamen are specially liable to scurvy. This is the case only so far as lies in the fact that they have, so to speak, less physique than Europeans, and thus are more subject than the latter to all debilitating diseases. But a large number of Lascars now arrive in the port of London at all seasons of the year, and, as proper care is taken to provide them with suitable food and clothing, their average health is fully equal, and often superior, to that of other crews.

It is erroneous to suppose that scurvy is contagious or "catching," although, as with typhoid fever, the same cause will result in the illness of many persons, and so produce what is called an epidemic. In such cases, the weak man, or the man affected with some other malady (as venereal, rheumatism, heart disease, or consumption), always goes to the wall first. An important and obvious precaution against scurvy therefore is to take the law as it stands, and exclude from the crew as far as possible, unhealthy men, by means of a medical examination. This precaution will obviate the risk of taking out or bringing home isolated cases of scurvy, or indeed any other serious disease; and as to scurvy in an epidemic form, we are fully persuaded, that in this seventh decade of the present century, there is, scientifically and practically speaking, no possible excuse for its existence.

THE MOUNT'S BAY DRIFT MACKEREL FISHERY.—In answer to the memorial from the Mount's Bay Drift Fishermen, recently forwarded to the Board of Trade through Sir John St. Aubyn, Bart., M.P., the following has been received, and, through Mr. Thomas Cornish, of Penzance, forwarded for publication:—"Board of Trade, May 10, 1876.—Sir,—With reference to the memorial forwarded to this Department by you from the masters of boats engaged in the mackerel drift fishery belonging to Mount's Bay, complaining of the alleged practice of wilful destruction of drift mackerel nets by trawlers on the coast of Cornwall, I am directed by the Board of Trade to acquaint you that they have been in communication with the Admiralty on the matter, and have received from that Department an intimation to the effect that directions have been given to one of H.M. cruisers to visit, occasionally, and cruise between the Lizard and St. Ives, with a view of putting a stop to the malpractices complained of.—I am, Sir, your obedient servant, C. Cecil Trevor.—To Sir John St. Aubyn, Bart., M.P."

ILLUMINATING OILS FOR USE ON BOARD SHIP.

THE burning of the *Goliath* in the Thames is known to have been caused by an accident to a lamp in which a dangerous petroleum oil was used. The rapidity of the destruction in that case, even when so near to help, is a startling illustration of how terribly easy it is for a large vessel to disappear by fire, and nobody in particular to be blamed for it. In the case of the *Goliath* the petroleum was not *legally* "dangerous;" it was *legally* safe; it was *legally* 44 steps out of danger, for the Act says that danger ends at 100°—oils giving off an inflammable vapour below 100° Fahr. are alone *legally* dangerous. Oils having a higher flashing point must therefore be legally considered safe, and that oil had its flashing point as high as 144°. The result of a careful consideration of the burning of the *Goliath* is the conclusion that it is just as dangerous to a passenger vessel to be hit with such a lighted petroleum lamp as it is to be hit by another vessel. Indeed, of the two kinds of collision, it is probable that of the former a greater percentage lead to the loss of the vessel than of the latter. It is not difficult either to understand how this great danger attends the use of a legally safe oil. The inner surface of a lamp reservoir is always covered with a film of oil, which has a flashing point much below that of the oil in the reservoir. At first sight it may appear that there cannot be any difference between the two; but these oils are actually decomposed at every evaporation, and the condensed vapour, when next evaporated, shows a lower flashing point. Now the inner surface of the reservoir above the oil is coated with such a recondensed oil, and when the lamp is broken the heat is sufficient to ignite that thin film, and the heat from that is soon sufficient to put the rest ablaze. There is seldom a day passes without some instance of the kind being in the papers.

In to-day's paper (June 16,) we have an account of a great fire in Thames Street, cause unknown; but ascribed by those who knew the building to spontaneous combustion, originating amongst the sacking like the great fire in Tooley Street. By a leading article in the same paper, our attention is directed to the causes of spontaneous combustion, and we have been led to write on this subject now because the principal cause of spontaneous combustion is shown to be the presence of oil in certain substances; and we have therefore oil to blame in spontaneous combustion as well as in cases of accidental ignition.

The subject of spontaneous combustion in relation to fires at sea was treated at considerable length by Professor Graham, in an official report on the cause of fire in the case of the burning of the *Amazon*. Other

chemists have since then contributed to the list of facts, making up what is now known about the causes of spontaneous combustion. After the great fire at London Bridge in 1861, one of the witnesses, in a case arising out of the insurance policies, Dr. Taylor, states that, according to experiments he had made, moist jute is incapable of spontaneous combustion, but that it is probable that jute, cocoa-nut fibre, linen and cotton rags, imbued with oil, might undergo this change.

Within a few weeks, further experiments have been made in this matter in a case arising out of the burning of a carpenter's shop. Some linseed oil had leaked from a vessel containing it, and soaked some chips and sawdust, and through spontaneous combustion thereby produced the conflagration is believed to have occurred. The results now arrived at by experiment are most important, as they distinguish different oils by opposite qualities in respect to spontaneous combustion. It is stated that, as a rule, if inflammable material presenting great surface in proportion to its weight to the action of a gas which can penetrate its bulk, such as jute and cotton-fibre, rags, or shavings, be soaked with an animal or vegetable oil, and left for a few hours in a temperature of 175° or upwards, spontaneous combustion is certain to take place. Seal oil is also dangerous; but sperm oil and some mineral oils like sperm have actually a protective value, preventing spontaneous combustion; they "appear to retard or altogether prevent oxidation by protecting the saturated material from the air."

The cause of spontaneous combustion is the slow chemical combining of the substance with oxygen derived from atmospheric air. "Many finely-divided or porous substances, such as charcoal powder or small coal, are capable of burning—that is, of combining with oxygen at comparatively low temperatures. The substance absorbs and condenses the air within its pores; oxidation then commences immediately and varies the temperature, which again accelerates the oxidation, and thus the process goes on with continually increasing rapidity till at length the mass bursts into flames. The low conducting power of such a porous mass greatly facilitates the combustion by preventing the dissipation of the heat generated. Instances are known of olive oil igniting upon sawdust, of greasy rags from butter, heaped together, taking fire within a period of twenty-four hours; of the spontaneous combustion of tape-measures, which are covered with an oil varnish, when heaped together; and even of an oilskin umbrella, when put away in a damp state. The presence of moisture greatly promotes the spontaneous ignition of porous materials, such as hay, or coaldust, the water probably supplying oxygen to the combustible matter." "Drying oils exposed to the air for eighteen months increase in weight by 7 or 8 per cent. This increase is due to the absorption of oxygen. After some time the increasing in

weight ceases ; but the imperceptible combustion is still going on, and a small quantity of carbonic acid gas is now exhaled along with a still smaller quantity of hydrogen, while a small quantity of strongly acid water is produced, which is loosely attached to the oil." This is just a miniature imitation of the process of incandescent combustion ; and when the heat produced on this small scale does not get away as fast as it is produced, the temperature must increase and create a fire.

The only oils safe in relation to spontaneous combustion are sperm and mineral oils. The price of sperm oil prevents its general use for illuminating purposes on board ship ; and the mineral oils commonly sold are like that of the *Goliath's* lamp, only *legally* safe. Some time ago, after the Chicago fire, the United States Government raised the legal fire test for oils to be used in passenger steamers to 250° Fahr., or 150° above the flashing test in this country. This law was made with the knowledge that there were then mineral oils in the market that would stand that test, and that the cost of these safe oils would be only a mere fraction more than that of the dangerous oils. One of the best of these safe oils is what is called the mineral sperm oil, an oil that possesses all the qualities of sperm oil, its non-inflammability unless at very high temperatures, and its non-liability to cause spontaneous combustion in any matter on which it may by accident leak or be spilled.

At the beginning of this article we have said that a blow with a lighted petroleum lamp with oil such as that commonly sold as safe according to the Act, is one of the most dangerous collisions which a passenger vessel can experience. The mineral sperm oil, although made from the petroleum oils, is quite different ; its light is as bright and free from smoke as that of any of the dangerous oils, but it emits no odour and it is absolutely safe from inflammability in the case of a lamp being accidentally broken. We have seen it burning in the Cunard and other Atlantic steamers, in the cabins and in side-lights ; it is in every respect the best light that has yet been used on shipboard. After seeing it in these vessels we have seen the oil tested by fire, and we recommend any interested in this subject to see it for themselves. A vessel filled with the oil is heated to 212°, shown by a thermometer immersed in the oil. A bunch of lighted cotton well ablaze is then applied to the surface of the oil when no inflammable vapour is shown, the torch is then partly immersed in the oil and stirred through it but without igniting it. Indeed, the oil extinguishes the flame as water would. The cotton is again well lit up, and the oil is poured on it in a fine stream, when the flame is again extinguished by the oil.

To underwriters and to those who take their own risks this oil or any oil possessing the same properties is of great importance. The General Steam Navigation Company have just almost completed the entire re-

fitting of their lamps for this oil. The change fortunately is only a few pence per lamp on the large lamps. This change was made after the burning of the *Goliath*, we understand, through having read as for all shipowners the lesson contained in that accident.

Little is known generally in this country about the different characters of the oils produced from the petroleum wells of America. From the same crude petroleum a great many different kinds of oil can be manufactured. The result of analysis is that crude petroleum consists chiefly of different homologues of marsh gas. "A homologue of marsh gas" is the chemical expression for a parcel of carbon and hydrogen atoms made up in the same way as a molecule of marsh gas is made up.

H

Now, a molecule of marsh gas is made up thus:—H C H where H represents an atom of hydrogen and C an atom of carbon. A set of atoms

H

with, instead of once C, any number of these inserted between the two

H

end atoms H, H, would be a homologue of marsh gas. For example,

H H H H

H C C C C H is the hydride of butyl, the lightest of the mineral oils, it

H H H H

is a gas at temperature above 34° Fahr.; its density is .6 of that of

H

water. With one more of C in it the oil is hydride of amyl; its density

H

is .628, and it boils at 86° Fahr. As the series advances, the specific gravity of the oil and its boiling point keep steadily increasing until

H

there are 27 of C between the two H, H, at the ends. This is the solid

H

paraffin of which the candles are made. The intermediate products for almost every step in the series have been obtained, and the whole of a charge of oil can be distilled into the lightest of the oils, leaving only a solid carbon residue and some uncondensable gas. This is accomplished by what is called "cracking" the oil. It is found that these oils cannot be evaporated without a decomposition—a breaking up of the molecule into two parts, each of course containing fewer of the carbon atoms, but retaining the same order in the arrangement of the atoms. This is called "cracking." By condensing and re-evaporating, the oil molecules are again still further subdivided. Stills are made to be worked in this way; some of them of immense size, holding as much as 80,000 gallons, or about 300 tons of oil each. The distilling apparatus is operated slowly, so

that the condensed vapours of the petroleum, or heavy oils, obtained from it are repeatedly re-heated by being returned into the body of the still; and in this way the yield of the lighter hydrocarbons can be increased at will, the whole contents of the still being converted into burning oil when desirable.

The mineral sperm oil is not obtained by direct distillation in this way. It is made from a heavy oil obtained from crystallised paraffin wax by pressure. The heavy oil is then treated by a patent deodorising process. It is placed in stills heated by fires underneath, the temperature is slowly and gradually raised, until from twenty to thirty per cent. of the contents of the apparatus is distilled over; it is then allowed to cool in the stills, and when removed it is ready for sale. The hydrocarbons that pass over to the condensers during this process have very offensive odours; but the oil remaining in the stills is quite free from the characteristic odour of paraffin oil, and has only a slight odour similar to that of fat oils. Live steam is generally used in the body of the oil during this operation, and the distillation is effected at as low a temperature as possible.

The mineral sperm oil obtained is sufficiently thin to fill the wicks perfectly; but it is so far from being a volatile oil that it is comparatively inodorous, and will not take fire at any temperature below 300° Fahr., or nearly 100° above the boiling-point of water. Flames of considerable size, such as a large ball of wicking yarn, saturated with oil, and ignited, when plunged beneath the surface of this oil, previously heated to the temperature of boiling-water, are immediately extinguished.

As we are not of those who think there ought to be a Government regulation for everything, we cannot recommend that the American regulation should be adopted in this country. It is, however, quite in accordance with our political creed to desire that the 100° flashing-test at present required by law should be abandoned altogether, so that the false security which its existence sanctions may be dissipated, and the use of mineral oils be regulated by such experiences as that of the *Goliath*, or other cases referred to at the beginning of this paper.

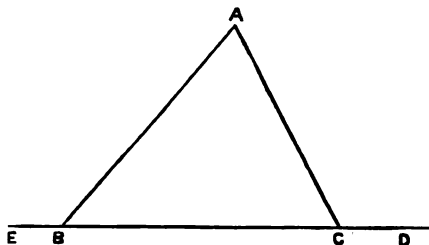
We are certainly of the opinion that, while such an oil as this "mineral sperm" is to be obtained, shipowners and masters are not altogether wise in burning other kinds of mineral oil, which though *legally* safe, yet are liable to produce disastrous results both to life and property.

RAPER'S NAVIGATION.

TAKING DEPARTURES.

DETERMINATION OF DISTANCE.—(1.) By Two BEARINGS OF THE SAME OBJECT.

350.



Let A be the object, B the position of the ship when the first bearing is taken, B C the direction in which the ship sails in the interval, C the position when the second bearing is taken; then the angle A B C is the number of points between the first

bearing and the Course, B C is the distance run in the interval, and the angle A C D is the number of points between the second bearing and the Course.

Table 7, by which this problem is solved, is calculated by dividing the Sine of the number of points at the top by the Sine of the difference between the number of points at the side and top of the Table.

(1.) To FIND THE DISTANCE WHEN THE LAST BEARING WAS TAKEN.

In the triangle A B C,

$$\frac{A C}{B C} = \frac{\sin A B C}{\sin B A C} = \frac{\sin A B C}{\sin (A C D - A B C)} = \text{No. in Table 7.}$$

$$A C = B C \times \text{No. in Table 7.}$$

Hence the rule.—Enter Table 7 with the first number of points A B C at the top and the second number of points A C D at the side, take out the corresponding number $\frac{\sin A B C}{\sin (A C D - A B C)}$ and multiply it by the number of miles made good by the ship B C; the result is the Distance A C in miles at the time the last bearing was taken.

(2.) To FIND THE DISTANCE WHEN THE FIRST BEARING WAS TAKEN.

In the triangle A B C,

$$\begin{aligned} \frac{A B}{B C} &= \frac{\sin A C B}{\sin B A C} = \frac{\sin (16 \text{ pts} - A C D)}{\sin (A B E - A C B)} \\ &= \frac{\sin (16 \text{ pts} - A C D)}{\sin \{ (16 \text{ pts} - A B C) - (16 \text{ pts} - A C D) \}} = \text{No. in Table 7.} \\ A B &= B C \times \text{No. in Table 7.} \end{aligned}$$

Hence the rule.—Enter the Table with the supplement of the second number of points (16 pts – A C D) at the top, and the supplement of the first number of points (16 pts – A B C) at the side, take out the multiplier

$\frac{\text{Sin (16 pts – A C D)}}{\text{Sin } \{ (16 \text{ pts – A B C}) - (16 \text{ pts – A C D}) \}}$

and proceed as above directed.

TO FIND THE DISTANCE WHEN THE BEARING IS AT RIGHT ANGLES TO
THE COURSE.

If A B C is a right angle, $AB = BC \tan C$, or by the notation of the Traverse Table, A B is Dep, B C is D Lat, C is Course.

Hence the rule.—Enter the Traverse Table with the number of points C at the other observation as a Course, and the Distance run B C as D Lat, the corresponding Dep A B is the Distance of the object when observed at 90° from the Course.

Note.—The explanation of the construction of Table 7 as given in p. 374 of Raper's "Navigation" is incorrect. "The diff. between the Course and the second bearing" should be the diff. between the diffs. of the Course and first bearing and of the Course and second bearing, or the diff. between the bearings.

352.

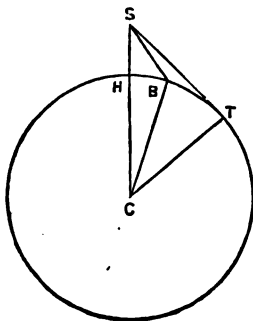
(2.) BY SOUND.

One-fifth of a Nautical mile is $\frac{6080}{5}$ ft = 1216 ft. If $\frac{1}{5}$ th of this be deducted the remainder is 1115 ft, which is very nearly the rate of sound per second.

Hence the rule.—Divide the number of seconds elapsed by 5 and subtract from the quotient $\frac{1}{5}$ of itself; the result is the Distance in miles very nearly.

357.

(3.) BY THE ALTITUDE OF HIGH LAND.



Let S represent the summit of the high land, ST the tangent to the surface of the Earth, whose radius is r and centre C. $SH = h$ is the height of the summit, $SCT = d$ the corresponding dip; let B be the point whose Distance (D) from S is required, and the Altitude of S from B = A. Since B C is at right angles to the horizon at B, the angle $CBS = 90^\circ + A$; also $SC = r + h$, $ST = r \tan d$.

In the triangle SCB ,

$$SC^2 = SB^2 + BC^2 - 2 SB \cdot BC \cdot \cos CBS$$

$$\text{or } (r+h)^2 = D^2 + r^2 - 2 Dr \cos (90^\circ + A) = D^2 + r^2 + 2 Dr \sin A$$

In the triangle $SC T$,

$$SC^2 = CT^2 + ST^2$$

$$\text{or } (r+h)^2 = r^2 + r^2 \tan^2 d$$

$$\text{Therefore } D^2 + r^2 + 2 Dr \sin A = r^2 + r^2 \tan^2 d$$

$$D^2 + 2 Dr \sin A = r^2 \tan^2 d$$

$$D^2 + 2 D A = d^2 \quad (A \text{ and } d \text{ being small})$$

$$D^2 + 2 D A + A^2 = A^2 + d^2$$

$$D + A = \sqrt{A^2 + d^2}$$

$$D = \sqrt{A^2 + d^2} - A$$

Hence the rule.—To the square of the Depression d^2 corresponding to the height of the summit add the square of the remainder A^2 (which is found at once in the column headed "Square" against the remainder is Depression). Look for the sum $A^2 + d^2$ in the column headed "Square," and take out the Depression corresponding $\sqrt{A^2 + d^2}$; from this take the remainder A , the result is the Distance D of the summit in miles.

The rule given in the foot-note to this precept may be obtained by putting $r +$ height of eye for BC in the above investigation.

359. Taking from 357 the equation

$$D^2 + 2 Dr \sin A = r^2 \tan^2 d$$

$$D^2 + 2 Dr \sin A + (r \sin A)^2 = r^2 \tan^2 d + r^2 \sin^2 A$$

$$= r^2 (\tan^2 d + \sin^2 A)$$

$$= r^2 \left(\frac{\sin^2 d}{\cos^2 d} + \sin^2 A \right)$$

$$= r^2 \frac{(\sin^2 d + \sin^2 A \cos^2 d)}{\cos^2 d}$$

$$= r^2 \left\{ \sin^2 d + (1 - \cos^2 A) \cos^2 d \right\}$$

(Cos $^2 d$ in the denominator being omitted, as it is very nearly 1).

$$= r^2 (\sin^2 d + \cos^2 d - \cos^2 A \cos^2 d)$$

$$= r^2 (1 - \cos^2 A \cos^2 d)$$

$$= r^2 (1 - \cos^2 x), \text{ (Cos } ^2 x \text{ being put for } \cos^2 A \cos^2 d)$$

$$= r^2 \sin^2 x$$

$$D + r \sin A = r \sin x$$

$$D + A = x \quad (A \text{ and } x \text{ being small})$$

$$D = x - A, \text{ where } \cos x = \cos A \cos d$$

Hence the rule.—Add the log Cos of the remainder (Cos A) to the log Cos of the Depression (Cos d) corresponding to the height of the

mountain, the sum (rejecting 10) is the log Cos of an arc (Cos x). From this arc x take the said remainder A , this leaves the Distance D of the summit in miles.

368. The direction of the object may be considered as a Meridian, and small circle described by the distance of the object as a Parallel of Latitude, then the change of distance in the direction of the object will be the D Lat, and the angle between the direction of the object and the direction in which the ship is sailing will be the Course; hence with the Course and Dist find D Lat from the Traverse Table, and call it change of distance.

Using the figure and notation of 357, and also putting D_1 for the Distance at the less Altitude and a this Altitude, c the change of distance in the interval, we have as before

$$(r+h)^2 = D_1^2 + r^2 - 2 D_1 r \cos (90+a) = D^2 + r^2 - 2 D r \cos (90+A)$$

$$D_1^2 + 2 D_1 r \sin a = D^2 + 2 D r \sin A$$

$$D_1^2 + 2 D_1 a = D^2 + 2 D A$$

$$(D+c)^2 + 2 (D+c) a = D^2 + 2 D A \text{ (Since } D_1 = D+c \text{)}$$

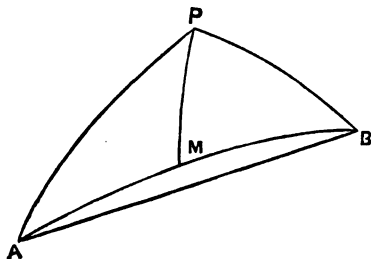
$$D^2 + 2 D c + c^2 + 2 D a + 2 c a = D^2 + 2 D A$$

$$2 D (A-a-c) = c (2 a+c) = 2 c (a+\frac{1}{2} c)$$

$$D = \frac{c (a+\frac{1}{2} c)}{A-a-c}$$

Hence the rule.—To the less Altitude a add half the change of distance $\frac{1}{2} c$ call this $(a+\frac{1}{2} c)$ the first remainder. From the greater Altitude A subtract the less Altitude a and the change of distance c , call this $(A-a-c)$ the second remainder. Multiply the first remainder $(a+\frac{1}{2} c)$ by the change of distance c , and divide the product $c(a+\frac{1}{2} c)$ by the second remainder $(A-a-c)$; the quotient $\frac{c(a+\frac{1}{2} c)}{A-a-c}$ is the distance in miles when the greater Altitude was taken.

895. TO CONVERT THE BEARING OF A DISTANT OBJECT AS TAKEN FROM THE CHART OR COMPUTED BY MERCATOR'S OR MID. LAT SAILING INTO THE TRUE AZIMUTH.



Let AB be the Rhumb line and AMB the Great Circle through A and B , P the Pole, PA and PB Meridians, then the angle PAB is the True Azimuth of B from A . Also if M be the point of Maximum Separation of the Curve and Rhumb line, the angle PMB is the Rhumb Course, since the Curve at the point M is parallel to the Rhumb line AB .

In the Spherical triangle A P M,

$$\frac{\sin M}{\sin A} = \frac{\sin A P}{\sin M P}, \quad \sin M = \sin A \cdot \frac{\sin A P}{\sin M P}$$

If Lat A = l Lat B = l_1 then Lat M = $\frac{l+l_1}{2}$ nly

$$\sin M = \sin A \cdot \frac{\cos l}{\cos \frac{1}{2}(l+l_1)}$$

$$\sin M - \sin A = \sin A \cdot \frac{\cos l}{\cos \frac{1}{2}(l+l_1)} - \sin A$$

$$= \sin A \left(\frac{\cos l}{\cos \frac{1}{2}(l+l_1)} - 1 \right)$$

In the Spherical triangle A B P,

$$\frac{\sin A}{\sin P} = \frac{\sin P B}{\sin A B}$$

$$\sin A = \frac{\sin P \cdot \sin P B}{\sin A B} = \frac{\sin P \cdot \cos l_1}{\sin A B}$$

$$\text{Therefore } \sin M - \sin A = \frac{\sin P \cdot \cos l_1}{\sin A B} \left(\frac{\cos l}{\cos \frac{1}{2}(l+l_1)} - 1 \right)$$

$$= \frac{\sin P \cdot \cos l_1}{\sin A B} \cdot \frac{\cos l - \cos \frac{1}{2}(l+l_1)}{\cos \frac{1}{2}(l+l_1)}$$

$$= \frac{\sin P}{\sin A B} \left(\cos l - \cos \frac{1}{2}(l+l_1) \right) \text{ since } \frac{1}{2}(l+l_1) = l_1 \text{ nly}$$

$$2 \sin \frac{1}{2}(M-A) \cdot \cos \frac{1}{2}(M+A) = \frac{\sin P}{\sin A B} \cdot 2 \sin \frac{1}{2}(2l+l_1).$$

$$\sin \frac{1}{2}(l+l_1-2l)$$

$$= \frac{\sin P}{\sin A B} \cdot 2 \sin \frac{1}{2}(l+l_1) \cdot \sin \frac{1}{2}(l_1-l)$$

$$\text{since } \frac{2l+l_1-l_1}{4} = \frac{l+l_1}{2} \text{ nly}$$

$$\sin(M-A) \cdot \cos M = \sin P \cdot 2 \sin \frac{1}{2}(l+l_1) \cdot \frac{1}{4} \frac{\sin(l_1-l)}{\sin \text{Dist}} \text{ since } M=A \text{ nly}$$

But $\frac{\sin(l_1-l)}{\sin \text{Dist}} = \frac{\sin D \text{ Lat}}{\sin \text{Dist}} = \frac{D \text{ Lat}}{\text{Dist}} = \cos M$ (Rhumb Course)

$$\text{Therefore } \sin(M-A) = \frac{1}{2} \sin P \cdot \sin \frac{1}{2}(l+l_1)$$

$$= \sin \frac{1}{2} P \cdot \sin \frac{1}{2}(l+l_1) \text{ P being small}$$

$$\text{or } \sin(\text{Diff between Rhumb Course and True Azimuth})$$

$$= \sin \frac{1}{2} D \text{ Long. } \sin \text{Mid Lat}$$

Hence the rule.—To the log Sine of half the D Long add the log Sine of the Mid Lat; the sum (rejecting 10) is the log Sine of the Correction required.

Since the Great Circle is always on the polar side of the Rhumb, the correction must be allowed to the N in N Lat and the S in S Lat, that is,

if the Rhumb Course is Northerly it must be subtracted in N Lat and added in S Lat, but if the Rhumb Course is Southerly it must be subtracted in S Lat and added in N Lat.

W. H. BOLT.

Nautical Academy,
10, King Street, Tower Hill.

INSTITUTION OF NAVAL ARCHITECTS.

(Continued from page 518.)

"On Steel for Shipbuilding, as supplied to the Royal Navy." By J. Riley, Esq., of the Landore Siemen Steel Works.—In a paper by Mr. Barnaby, read last year on "Iron and Steel for Shipbuilding," he referred to the uncertainties and treacheries of Bessemer steel, in the form of ship and boiler-plates, and asked steelmakers "What are their prospects of obtaining a material which we can use without such delicate manipulation, and so much fear and trembling." The present paper is an answer to that question. The result of severe tests on Landore plates is that Mr. Barnaby's requirements have been fully met, and a contract has been entered into between the Admiralty and the Landore Company for the supply by the latter of plates, angles, and beams, for two armed dispatch vessels, to be built at Pembroke Dockyard. A great number of specimens were exhibited to show the remarkable ductility of the Landore steel. Of 101 test pieces, it was found that the breaking strain in tons per square inch varied from 25 to 81 tons, the mean being 28.16 tons. The average elongation in 8 inches was 1.94 inches, or 24.25 per cent. The experiments show only a very insignificant reduction of strength by punching. The steel described was not at first so easily welded as iron, but that difficulty is expected to be in a great measure overcome. The welding is now being performed more satisfactorily. The plates have nearly the same strength in both directions. It is thought that the superiority in strength of plates made at Landore over iron being so great, fully one-half more than best iron, vessels built of these plates will be either very greatly superior to iron vessels in strength, or their strength being reduced to that of iron vessels, their weight must be equally reduced, and their carrying capacity largely increased. It is stated, on the authority of experiments, that the corrosion of these plates when exposed to the action of salt water, is in the proportion of 8 to 7 when compared with

the effect of similar treatment upon iron plates. The shearing strain for a $\frac{3}{4}$ -inch rivet of Landore steel is above 14 tons, as compared with 10 $\frac{1}{2}$ tons for Staffordshire iron.

“On the Nicolaieff Floating and Depositing Dock.” By Latimer Clark, Esq.—This is an immense construction, embodying many new, and important features. The dock is designed specially for the purpose of raising the circular ironclads now being built in Russia, but it is also to be used—and, perhaps, principally—for docking the ordinary ironclads of the Russian Government. With this dock any number of vessels can be docked and deposited, high and dry, out of water, on wooden platforms, in a convenient position for cleaning and repairs, along the waste sloping shores of a river or dock. As the dock is to be used ordinarily for lifting vessels on to the stage, it can be kept at all times ready to receive disabled vessels. The dock is made in two similar halves, each having a cross section, like the letter L. The horizontal part of the L is a row of pontoons, with clear spaces between, to allow the L piece, with an ordinary vessel on it, to be floated over the uprights of the fixed stage. There is an outrigger pontoon at the outside of the upright piece, connected to it by a parallel-motion set of booms. The use of this side portion is to give stability to the dock when the pontoons are immersed. This is an ingenious device for accomplishing this object, and we recommend a study of the plans to any one desirous to understand the principles of flotation stability. One of the halves of the dock is sufficient for raising an ordinary ironclad, and the one half can even be employed to lift the other half, and place it high and dry on fixed staging for repair. Both halves are required for lifting a circular vessel, or Popoffka. Attention is directed to the unique advantages which this dock alone affords, viz.:—that of allowing ironclads, torpedo boats, and vessels of every form, to be laid up in ordinary on fixed stages instead of afloat. The economy of this proceeding, and the extension of life which would be thereby given to our Navy, will be obvious to all naval men. The durability of vessels laid up, high and dry on the stages, would be enormous; and, at a few hours’ notice, a whole fleet might be lowered into the water.

The dock is being built at the works of Messrs. Clark, Standfield and Co., Millwall.

“On the Ratio of Indicated to Effective Horse-power, as elucidated by Mr. Denny’s, M.M., Trials at Varied Speeds.” By W. Froude, Esq.—Mr. Denny now tries each of his ships at four or even at five speeds, and the result is he obtains data for a complete curve of indicated horse-power from the lowest to the highest speeds. In investigations of this

kind I invariably convert the horse-power term to a force term by dividing by the speed of the propeller expressed as the product of its revolutions by its pitch. The result thus obtained I term the "indicated thrust;" it is, in fact, the thrust which the propeller would be executing if the whole force of the steam were employed usefully in creating thrust, instead of partly in overcoming friction, driving the air-pump, and overcoming other collateral resistances. When decomposed into its constituent parts, indicated thrust is resolved into several elements, which must be enumerated and kept in view. The results of the comparison of Mr. Denny's experiments and those with the *Greyhound* show that, as a rule, only from 37 to 40 per cent. of the whole power delivered is usefully employed. In Mr. Denny's ship the usefully employed power is as much as 42 per cent. The whole power is shown to be divided about as under, when at full speed :—

1. The ship's net resistance	...	...	...	...	38.78
2. Indirect negative pressure under the stern	...	...	...	...	15.49
3. Water friction of screw	...	...	...	...	3.87
4. Engine, constant friction	...	...	...	...	13.
5. Engine, friction due to working load	...	...	...	...	13.
6. Air-pump resistance	...	...	...	...	6.82
7. Ship ...	...	...	...	...	9.09

Total indicated horse-power 100.

"On the Comparative Resistance of Long Ships of Several Types." By W. Froude, Esq.—This is a paper on experiments, with models corresponding to four vessels of two types of form—(1) that form in which a straight parallel-sided middle body is interpolated between ends of greater or less fineness; (2) that in which the whole length of the ship is utilised in fineness of form, the results being worked out for the *Merkara*, Mr. Denny's ship, and three other ships of the same displacement. Of each of the types, one model had a greater degree of fineness than the other. The displacement in each case is 8,880 tons. The results of the comparison show that at very low speeds, as compared with the length of the ship, the ship's resistance, if her form be fairly fine, consists practically of nothing beyond surface friction.

Even at a speed as high as twelve knots a diminished area of skin is seen to be valuable when the effect of fouling is taken into consideration, a circumstance of special importance to a ship of war which may be under the necessity of keeping the sea for long consecutive periods. Our experiments on surface friction show that the substitution of a surface of ordinary unbleached calico for one of clean paint produces

just a double frictional resistance, and a foul bottom must often be no less obstructive. What I contend against is, not the parallel middle body *per se*, but the mistaken idea which to most minds forms the basis of its justification, the idea, namely, that to lengthen a ship by merely introducing a parallel middle involves no material increase of resistance, the supposition being that the middle thus added will follow unobstructed through the opening made in the water by the full-sized ends.

“On Raising Sunken Ships.” By H. T. Knapp, Esq.—This paper describes plans for raising the *Vanguard*, and vessels similarly circumstanced. The author's views did not meet with much favour.

“On the Telegraph Ship *Faraday*.”—This paper gives a full description of this very successful vessel, of which we cannot give more than the general dimensions. The *Faraday* is a double-ended ship, with a rudder at each end, 360 feet long, 52 feet beam, and 36 feet deep, drawing usually at load draught from 22 to 24 feet. She has a flat flow, rather square bilges, with large external bilge keels, and is usually sailed on very nearly even keel. The vessel has three cable tanks, having an aggregate capacity of 109,500 cubic feet enclosure of the central cones. The form and displacement is such that the vessel will carry 4,300 tons of cable and water in tanks, 150 tons of stores and cable machinery, and 1,400 tons of fuel, or a total of 5,850 tons dead weight, all told, at about 26 feet mean draught of water.

“On Three-throw Crank Engines of the Compound System,” constructed by Ravenhill, Eastons, & Co., London; H.M.S. *Rover*. By John R. Ravenhill, Esq.—This paper gives an interesting account of these engines, and the reasons for the arrangements that have been adopted in them. The three cranks are at 120° apart, with the object of having still two cylinders with no dead point, even if one cylinder should be disabled.

“On some Performances of the Screw Propeller, and certain proposed Schemes for Increasing its Efficiency and Reducing its Straining Effects upon the Hulls of Ships.” By Hamilton W. Pendred, Esq.
“On the Propulsion of Bodies.” By R. Griffiths, Esq.—These two papers we pass without any attempt to condense the somewhat diffuse and not very valuable information contained in them.

“On Water-Tube Boilers.” By J. Fortescue Flannery, Esq.—This was an excellent paper on a very important subject, which has already been treated in the *Nautical*, in connection with the boilers of the

Montana. A great deal of information, with valuable drawings, are given by Mr. Flannery. Water-tube boilers he leaves in very nearly the same position in which we left the *Montana's*, as almost all failures. He makes an exception in favour of the tubulous-boiler of Mr. John Watt, of Birkenhead. A boiler on Mr. Watt's plan has been at work for some months in a steam-flat on the Mersey, working with partially salt water, the engineer not having a surface condenser, and it is said that the circulation is so perfect that no scale has been formed, and no trouble of any kind has been experienced with the tubes. We are informed by Mr. Flannery in this paper that the Admiralty is now engaged in a trial of the high-pressure boiler on Perkins's well-known system. The results when published will, no doubt, be instructive.

“On the Longitudinal Girder or Bulkhead System of Iron Ships' Construction.” By E. De Russett, Esq.—This is a paper on an already well ventilated system of construction. The paper is accompanied by a detailed drawing of a steamer 380 feet long, with a central longitudinal bulkhead, and turnscrews. The vessel is completely divided by this bulkhead from peak to peak. In the whole arrangement the principle of having two strings to a bow is fully carried out.

The other papers contained nothing specially interesting. One, on a “Compound Surface Condensing Engine,” by M. J. A. Normand, of Havre, describes a very good way of using the superabundant steam while the engines are standing. He places a nozzle, on the injector principle, in the discharge passage of the circulating water, and by admitting steam to this nozzle a current of circulating water is maintained. This is a quieter way of keeping the condenser cool than that usually adopted of starting the donkey on the condenser.

THE following Official Notice has been issued by the Board of Trade with reference to Incorrect Charts.—“Notice to Owners and Agents.—The attention of the Board of Trade has frequently of late been called to cases in which British Vessels have been endangered or lost through the Masters attempting to navigate them by means of antiquated, or otherwise defective charts. The Board of Trade desire, therefore, to direct the especial attention of shipowners and their servants and agents to the necessity of seeing that the charts taken or sent on board their ships are corrected down to the time of sailing.—Thomas Henry Farrer, Secretary, Marine Department.—By order of the Board of Trade v. 1876.”

THE BRITISH SHIPMASTERS' ASSOCIATION.

IT will be fresh in the recollection of our readers that the shipmasters of the United Kingdom were roused to action by the unjust decision of Mr. Paget, stipendiary magistrate of the Thames Police Court, against Captain Barnes of the *Locksley Hall*. Captain Barnes had imprisoned a sailor on board of his ship; the man resisted all friendly efforts on the part of Captain Barnes and the passengers to induce him to return to his work; he was mutinous and disorderly, and he suffered the consequences. But the magistrate declared that the sailor had been sufficiently punished; and he gave it as his decision that Captain Barnes had illegally held him in irons—so Mr. Paget condemned Captain Barnes to twenty-one days' imprisonment. The largest public meeting of shipowners, shipmasters, and underwriters, ever held in the city, resolved at the London Tavern to have the question settled whether the captain of a British ship was to have control of his men or not on board ship. Mr. Disraeli received a deputation from that meeting, and declared that the shipmasters were entitled to full power on board their ships, and the Prime Minister went further by expressing his disapproval of the judgment rendered by Mr. Paget.

In order to secure the full advantage of this stimulus given to action amongst the shipmasters of this country, an influential number of the members of the profession formed themselves into a Committee, and on the 9th of June the Lord Mayor took the chair in the city, supported by Mr. Green, the well-known shipowner, and Mr. Donald Currie, another of our shipowners. The preliminary steps were taken at that meeting for the formation of the above Association, and we are happy to hear that the arrangements for its constitution are now in progress.

If the shipmasters will act with judgment, as well as energy, in binding themselves together as a co-operation for mutual protection, and for the advancement of their common interests, this Association will do great public good; but the shipmasters should depend upon themselves; they should work together harmoniously in the inception of the concern; they should avoid any possible future complication in their organisation, and the basis of the Association should be the broadest possible. It is not in any sense intended to be a Trades' Union—an Association against shipowners or against sailors—but only an Institution favourable to the development of a friendly understanding and co-operation between the highly respectable and nationally important class of the master mariners of England.

BOOKS RECEIVED.

Society of Engineers.—Transactions for 1875. London: E. & F. N. Spon, 48, Charing Cross. 1876.

THE volumes of the transactions of this vigorous society increase in bulk year by year, and the contents of the present volume maintain the reputation of the society for practical common-sense papers.

The First Ten Years of a Sailor's Life at Sea. By the author of "All about Ships," &c., &c., &c. London: Sampson Low. 1876.

THE author of this interesting book is evidently a genuine Old Salt, and writes most genially about his adventures as a young sailor. We learn, from a statement published at the end of the present volume, that there are three other books to follow, making, in all, forty years of a sailor's life. If the author continues to write in as graphic—and, at the same time, as pleasant—a style as he has done in his first book, we should think that the complete work will be a success. The tone of the narration is manly and healthy; and, what is of no little importance, there is nothing in the book which can do harm to its readers. Its simple and intelligible style is suited to the ordinary capacities of seamen, and we should not be surprised to hear that the book became a favourite in the fore-castle as well as in the cabin.

The Revue Maritime et Coloniale for June. Paris: 84, Rue Hauteville. 1876.

THIS standard serial contains a number of important papers in connection with maritime matters. Its contributors consist chiefly of officers in the French Navy, whose writings are characterised by practical knowledge and common sense. In the comprehensive chronicle of maritime matters published, we notice that our doings in England are accurately recorded.

We have also received—

Rivista Marittima. Rome: May and June.

Rivista Internazionale. Firenze: June.

Annual Report of the Department of Marine and Fisheries. Canada: 1875. With Supplements.

Tables relating to Life Salvage on the Coasts of the United Kingdom during the Year ended 30th June, 1875. (Issued by the Board of Trade, May, 1876.)

Newcastle (N.S.W.) Nautical Almanac, and Guide to the Port of Newcastle for 1876. Newcastle (N.S.W.): R. C. Knaggs & Co., Hunter Street.

CORRESPONDENCE.

THE "ADVANCE-NOTE SYSTEM."

To the Editor of the "Nautical Magazine."

SIR,—In the January number of your Magazine, I notice an article on the "Advance-Note System," written with practical knowledge of its existing state, except in the supposition that shipowners as a rule are averse to the abolition of advance notes, which I do not think to be the case.

It would be foolish for a shipowner to suppose that by giving a seaman an advance note, he is certain of securing him when the vessel sails, trusting to the crimp who cashed his note for his safe delivery on board, whether sober or drunk, but generally the latter, in which case it would be better to be without him. I have found, and I dare say other shipmasters could testify to the same experience, that men who do not take an advance seldom neglect to join their ship, and I think if the Shipping Office returns of deserting seamen were inspected this will be found to be the case.

It is evident that men who do not require an advance must be steadier than, at any rate, the majority of those who do, and not having had any advance they would gain nothing by not joining their ship, but run the risk of imprisonment for desertion, consequently, there is a greater probability of their being on board at the time than not. As an instance, this voyage, out of my deck hands of seven seamen, three men took advance notes, four did not. All the four were on board at the time appointed, but two of the three who took advances did not join.

This is only one instance, but the good that the abolition of advance notes would do, both in respect to the seaman's moral good, the benefit of shipowners and masters, and the safety of ships, is, I think, unquestionable.

Advance notes are an evil, given indiscriminately; and used recklessly by seamen to their own hurt, as they are in the present day, the abolition of them would be beneficial to seamen as a class, and besides being conducive to their own good, it would tend to better insure owners and masters getting their crews on board sober and fit for work, and this would go as much towards making a ship seaworthy as many of the Acts now being passed.

I notice your remarks as to the plea put forward that if the advance note were done away with what a serious plight the seaman's wife would be in, in having to go on "tick" for a month; and quite agree with you that

the wife seldom reaps any benefit from the advance, and that going on "tick" is exactly what they are doing in the present state of things.

If this is a reason why advance notes should be continued, I would suggest to meet this obstacle for their continuance and to "better" provide for the seaman's wife and family, that allotment notes be paid monthly in advance, the first half month's money due as an advance note now is.

No one could raise any objection to this arrangement, for the man who takes his advance note for the crimp to cash and reap the benefit of, ought not to have any, and those who previously made good use of it, and took it for their family good, will have exactly the same benefit as before, as the allotment would be paid at the time an advance note now is. Certainly, the allotment note could not be cashed, supposing the seaman to require ready money to buy necessaries for the voyage; but this would soon work its own end, and seamen would learn to keep sufficient money from a previous voyage to fit them for the next. The "system" as it is now, tends to make seamen careless of their money, as they always think they have the next voyage advance to fall back upon whenever they feel inclined to ship.

It would always be at the owner's option too, to make "cash" advances to steady men, not requiring any allotment, and this would have the effect of stimulating men to keep a good character and get known to be trustworthy, and for this end they would no doubt sail for several voyages in the same ship, or at any rate remain in the same employ, which would be a great advantage to us. There might be a few losses with the "cash system," but I think the gain would eventually exceed it. It is time something was done for the improvement of seamen, and to abolish advance notes would certainly be a first step, for not having to put himself in the power of crimps, the seaman would learn to respect himself more. As it is, he can hardly get his advance note cashed without going to some landshark to do it, he seldom gets half the value of the note, then probably he is made drunk and robbed of the little he did get, and in most cases very little of any advance goes towards an outfit for the voyage, as an advance generally means a "last spree."

It is a sad state of things, and time there was a change; sailors are fools to themselves, and unless guided into a right course, commencing with the abolition of advance notes which now helps to keep them down, and a viction to the crimp, they always will remain so.

WM. M. YOUNG,

Master S.S. *Acton*.

Barcelona, May 20th, 1876.

DISTRESS SIGNALS.

To the Editor of the "Nautical Magazine."

SIR,—I am surprised that another simple, yet highly important, matter, relating to the "salvage of life," has not yet received that careful attention it so decidedly merits. At present, when a vessel gets into danger and requires help, the custom is, as you are aware, at night to show what is termed a "flare-up," or large fire; and I regret to state that but too frequently vessels, merely on the look-out for a pilot, make use of the same signal. Most people have read in their youth of the fable of "The Boy and the Wolf," and if a similar signal be shown by a ship in distress as by one only wanting a pilot, the masters of such vessels in peril must not be surprised should help not arrive as speedily as it might.

Lifeboats have frequently been launched, and, to the disgust of their crew, returned to the shore, stating "the vessel wanted to show her position in the roadstead, and was out of blue lights;" secondly, "she only wanted a pilot, and asked us what did *we* come out for?" and, lastly, in my own experience—and that very recently—a large fire was burnt in close proximity to the lighthouse on the Flat Holmes on a somewhat boisterous night. The consequence was, that the lifeboat was launched, and out all night seeking for a supposed wreck, on a dangerous and rocky coast. All this is very wrong, and should therefore be remedied without loss of time.

I would desire to ventilate, through the medium of your widely-perused Journal, my simple proposition, namely, that by the common consent of European maritime nations, a *distress signal should be universally adopted*, to be burnt only when assistance is really required, and at no other time, under a heavy penalty.

A bright light, burning from 8 to 10 minutes, and throwing up a fire-ball every 20 seconds, would, I submit, answer the purpose.

On such a signal being observed, help would be despatched from every quarter, and salvage of life and property would result.

Trusting you will notice the above suggestion, and that our Board of Trade may be thereby induced to take the matter in hand at once and in real earnest.

I am, Sir,

Your obedient servant,

BLUE LIGHT.

Cardiff, June 9th, 1876.

I beg to state that I am in no way connected with any firework manufacturer.

[We would point out to our correspondent, that by the Merchant Shipping Act of 1873 (sec. 18), special signals are provided for the use of vessels in distress, and that efforts have been and are being made, to make these signals international. Already they have been adopted by many European Governments, and no doubt all will follow in due time. By the section above alluded to, it will also be seen that masters of vessels who permit distress signals to be made, render themselves liable to pay compensation for labour, risk, or loss incurred in consequence of the display of such signals. Our correspondent's letter shows how little is generally known on the subject.—ED.]

CAPE TO AUSTRALIA.

To the Editor of the "Nautical Magazine."

DEAR SIR,—It is my fate again to inflict upon you some remarks upon my favourite topic—the Southern Ocean route. The fact is, I have laboured so long and so persistently to bring this subject into notice that I am reluctant to relinquish my endeavours in that direction.

I find that others are now following in my wake, and begin to hope that some day we may find ships rolling down on the parallel of 40°, in preference to a higher latitude.

I trust the interesting letters on "Missing Ships" which have recently appeared in the *Sydney Herald*, and which I take the liberty of sending herewith, may serve to show you that the matter is really of great importance. Now that steamers are to some extent usurping the place of sailing ships in the Australian trade, it becomes, I think, more than ever desirable that the southern sweep idea should be exploded. If these powerful steamships run thundering down at a rate of 15 or 20 knots per hour amongst islands and ice, the chances are the consequences will much more frequently prove disastrous than heretofore.

Let me hope you may use the great power and influence you possess with the nautical world to change the opinions of those, by far the greater number I regret to say, who swear by 45° to 50° South latitude. Thanking you for your courteous reception of my letters hitherto,

I remain, dear Sir,

Yours faithfully,

J. F. NASH.

Sydney, New South Wales, March 26th, 1876.

"MISSING SHIPS"

"To the Editor of the Herald."

"Sir,—Whilst giving 'Quid,' in your issue of the 2nd instant, every credit for his humanity in suggesting that Royal ships should, on their

passage to these colonies, touch at all the islands in high southern latitudes to render assistance to those in distress, no doubt that would be a very desirable thing if ships of war could only be used for such a purpose, at the expense of the people of Great Britain. I do not for a moment think that any prudent commander of the Royal Navy would, on his own account, navigate his ship in high southern latitudes, to the discomfort of all placed under his charge, viz., wear and tear of his ship, and the risk of health to his crew by coming from a hot climate and rushing into extreme cold, nor do I think the Admiralty would give such an order as 'Quid' suggests, except for scientific purposes. I would suggest that in 'Quid's' next communication he should advise those who would like to gain renown by making a passage a mile or two shorter to make themselves perfectly conversant with the working of great circle sailing (not theory), so as at all times to be something within a few miles of their proper position, say 100, or else to shape such a course on the high seas as would avoid meeting with such dangers as the Crozets or other islands. Iceberg dangers I leave out of the question. Possibly 'Quid' in his next communication would suggest that a special ship should be sent to the Macdonal Islands. They are *only* a few miles *south of 'Kerguelen.'* To use 'Quid's' own words, 'You meet with constantly thick and tempestuous weather in their vicinity.' Would any prudent owner allow his ship to be sailed in such latitudes for the sake of a master gaining popularity by making a short passage, which, however, he would not always do?

"I would, had I the power, put a stop to navigating high south latitudes. Immigrants are protected by the powers with respect to comfort and provisions; but there is no law to prevent them from being washed overboard or half drowned on the passage, and perhaps a run on the Crozets to live on sea birds until relieved by a whaler, whose interest for the sake of gain takes them into that sea. If the insurance companies would increase the amount of their risks by doubling the policy over certain southern latitudes, say 42°, much loss to them, and comfort to the crew and passengers of these recklessly sailed ships would be had. I cast no reflection on 'Quid,' but let his suggestions or advice be as I have stated, and not for a man-of-war to risk their lives, to seek for what may be a possible shipwreck where a ship ought not to be—in 'Quid's' dangerous grounds.

"I am, Sir, yours, &c.,

"NAVIGATOR.

"Newtown, March 8."

“OUR MISSING SHIPS.

“To the Editor of the *Herald*.

“Sir,—I have just read ‘Navigator’s’ letter in this morning’s *Herald*, and his remarks on my previous letter on this subject, and beg to say that ‘Navigator’ has quite misunderstood me; for I certainly never advocated the bringing out of ships on the high southern parallels of latitude to these colonies, but, on the contrary, I have repeatedly called attention to this very undesirable route, especially for immigrant ships. What I said was this, that captains of outward-bound ships were too fond of pushing their great-circle sailing to extremely high latitudes for the sake of saving a few hundred miles of distance. I quite agree with ‘Navigator’ in thinking that this saving of distance is not always a saving of time, for ships often get delayed in those high latitudes by south-east gales and thick weather, besides being in the proximity of icebergs, necessitating easy sail at night, &c. ‘Navigator’ seems to think that ships have no business to be 100 miles out of their reckoning; but my experience goes to prove that ships, most carefully navigated, will sometimes get driven out of their course, and that, with a continuance of thick weather, when no observations can be taken perhaps for five or six days together, will find themselves far out of their dead reckoning, from the uncertainty of their compasses (especially in the iron ships of the present day) and from unknown currents, &c. It is therefore absurd to say that we ought not to ‘seek for shipwrecked vessels where ships ought not to be.’ I must also strongly protest against ‘Navigator’s’ assumption that it is not desirable to risk the wear and tear of British men-of-war and the ease and comfort of their crews by sending them to relieve shipwrecked men and women amongst the islands of the southern seas. Surely our British seamen have not so degenerated that a little cold and stormy weather, or in fact any amount of it, would for a moment deter them from risking their lives in such a cause. I would not insult the officers of our Navy by questioning for a moment their willingness to go on such an errand of mercy.

“Your obedient servant,

“QUID.

Sydney, March 16.”

“MISSING SHIPS.

“To the Editor of the *Herald*.

“Sir,—During the current month some interesting correspondence has appeared in the *Herald* concerning missing ships, into which has been introduced an expression of opinion respecting the various tracks pur-

sued by vessels bound to Australia. I have devoted much time and attention to this subject during the past nine years, and still take a deep interest in the question— 48° or 40° ; high or low latitude? I notice the question is, in effect, almost invariably answered thus—‘High! down to 50° if I die for it, and whether you like it or not.’

“The ‘far south’ or ‘Great Circle Track’ is certainly very much favoured in preference to that recommended by Captain Erskine, Piddington, and many others of great experience. This appears strange if we take into consideration the numerous instances which have occurred of ships coming to grief apparently, and *evidently* to those who have studied the matter, solely through running so far south. If figures prove anything, I am confident those I have tabulated showing the passages of ships to and from the Cape, parallels, &c., prove beyond doubt that the quickest runs have been made on or near the parallels of 39° or 40° .

“Although a daily reader of your paper I have, I regret to say, missed the letters in which ‘Quid’ says ‘he has repeatedly called attention to this very undesirable route, especially for emigrant ships,’ and should much like to ascertain the dates of their publication, as I desire to read all that is written upon this topic.

“Yours obediently,

“JACK ASHORE.”

“MISSING SHIPS.

“To the Editor of the *Herald*.

“Sir,—I am sorry I cannot furnish ‘Jack Ashore’ with the dates of my letters on the disadvantages of the high southern route, but I think it was about the time of the loss of the *Marco Polo* that I first called attention to the dangers and discomforts of this route. At that time the unfortunate *Marco Polo* and other clipper Liverpool ships were making a succession of very rapid passages by running their easting down in from 45° to 48° south latitude, and great complaints were made by the poor immigrants of the cold and wet weather experienced on the voyage.

“‘Jack Ashore’ will find a well written article on the disadvantages of this high southern route, in the *Nautical Magazine* for June, 1874, written by Captain Nash, and in which is proved, beyond doubt, that the fastest passages have been made by ships which ran down their easting in from 39° to 42° south—the route ‘Jack Ashore’ advocates. This, however, will not prevent some ships from getting down amongst the islands, as skippers will pursue their own course, in spite of all the books written or to be written; and thick weather will happen, and adverse gales will come, and vessels will get out of their track, as long as the ocean rolls and winds blow. I see by to day’s *Herald* that another

outward-bound ship, the *White Eagle*, lately arrived at Auckland, had a narrow escape from being wrecked on the Crozets ; and I, therefore, still advocate the sending of men-of-war there occasionally to seek for, and relieve shipwrecked crews.

“ Your obedient servant,

“ QUID.

“ Sydney, March 22.”

OUR NATIONAL SEAMEN AND OUR NATIONAL CHURCH.—The above is the title of a little brochure, emanating from the pen of Commander W. Dawson, R.N., who is so well known in connection with the Missions to Seamen—a society which has its head-quarters at 11, Buckingham Street Strand, London, W.C. The main object of this society, as we gather from the pages before us, is to provide the means of religious instruction to seamen, both ashore and afloat. Thirty-six seaports and roadsteads, at home and abroad, are occupied by their missionaries. The most completely organised seaport at home is Cardiff, where the society has a church-ship moored in the Bute Docks, in which services are regularly held, and are well attended by the seamen from the vessels in the docks. Nearly every vessel entering the port is boarded by the missionary, and an invitation given to the crew to the services on board the church-ship. The work of the society appears to be very energetically carried on, for, quoting Commander Dawson's words, we find that “ in the docks and harbour there is a daily visitation from ship to ship ; readings or meetings, whenever practicable with the crews ; services at the Sailors' Home, besides those on board the church-ship ; and visits to the seamen's hospital ship. None will be surprised that the Mission Clergyman complains that there are not enough cats to catch the mice, and that he needs further assistance.” Similar energy is displayed by the society's agents at the other ports. The deep-sea work is necessarily beyond the reach of the society ; but they seek to influence the officers and encourage them to hold regular religious services while at sea. The general tendency of shore influences on the seaman is unfortunately too often to brutalise and demoralise him ; and any organisation seeking to combat this tendency has our hearty sympathy. There can be no question of the power of *real* Christianity as a humanising influence wherever it is felt ; and if the society which Commander Dawson so ably advocates in his little book will persevere in bringing this influence to bear, we may hope, in course of time, to have less reason than at present to complain of the unseaworthiness of our sailors.

SHIPBUILDING, 1876.

SAILING SHIPS.

Ports.	No. of Ships first five months.		No. of Ships correspond- ing period last year.		Gross Tonnage first four months.		Gross Tonnage corresponding period last year.	
Aberdeen	6	...	4	...	2,899	...	2,407
Barrow	2	...	4	...	1,176	...	8,147
Belfast	2	...	3	...	1,985	...	2,986
Bristol	2	...	—	...	246	...	—
Cowes	4	...	4	...	188	...	374
Dartmouth	14	...	17	...	1,578	...	1,396
Dundee	6	...	12	...	3,242	...	1,900
Faversham	11	...	1	...	448	...	39
Glasgow	20	...	24	...	19,701	...	25,491
Greenock	8	...	10	...	3,071	...	7,366
Grimsby	11	...	5	...	1,189	...	321
Hartlepool	1	...	1	...	379	...	665
Hull	8	...	9	...	587	...	645
Jersey	4	...	5	...	298	...	519
Liverpool	17	...	11	...	13,070	...	5,932
London	8	...	4	...	439	...	178
Middlesbro'	2	...	1	...	1,605	...	182
Newcastle	2	...	3	...	1,738	...	788
Plymouth	14	...	7	...	1,458	...	1,314
Port Glasgow	7	...	9	...	5,816	...	9,006
Portsmouth	3	...	2	...	450	...	198
Rochester	6	...	4	...	246	...	196
Southampton	7	...	7	...	630	...	521
Stockton	1	...	1	...	1,485	...	1,472
Sunderland	22	...	24	...	14,832	...	18,649
Whitehaven	2	...	2	...	1,653	...	2,255
Workington	1	...	1	...	771	...	1,069
Yarmouth	7	...	4	...	329	...	138
Other Ports	...	82	...	67	...	11,898	...	9,861
Totals		280		236		92,742		98,460

SHIPBUILDING, 1876.

STEAMSHIPS.

Ports.	No. of Ships first five months.	No. of Ships correspond- ing period last year.	Gross Tonnage first four months.	Gross Tonnage corresponding period last year.
Glasgow ...	29	42	22,543	43,001
Greenock ...	8	8	4,227	10,298
Port Glasgow	5	14	3,608	7,052
Sunderland	9	8	11,394	10,414
Newcastle	19	15	18,598	16,535
North Shields	8	4	633	3,030
South Shields	8	6	1,229	2,759
Liverpool ...	4	5	4,711	4,127
Dundee ...	2	4	1,967	1,988
Hartlepool	4	9	2,108	10,185
Aberdeen ...	4	2	1,186	1,357
London ...	11	5	1,254	2,310
Belfast ...	1	—	497	—
Stockton ...	2	3	1,034	4,578
Middlesbro'	2	7	1,859	6,795
Hull ...	2	1	430	3,110
Whitby ...	1	3	1,447	3,595
Southampton	5	1	788	31
Barrow ...	1	—	790	—
Other Ports	11	12	636	2,782
Totals	136	149	80,889	133,947

THE NEWFOUNDLAND FISHERIES.—It has been decided that during the present fishing season the number of Her Majesty's ships engaged in protecting the interests of British subjects employed in these fisheries shall be increased, and shall be in no way inferior to the French naval force in those waters.

UNSEAWORTHY SHIPS.—The amount claimed as compensation from the Board of Trade on account of the detention, under the Merchant Shipping Acts of 1873 and 1875, of ships alleged to be unseaworthy and afterwards found to be seaworthy, was £3,826 1s. 9d. The amount paid by the Board of Trade was £1,138 8s. 4d. in respect of 12 ships.

MONTHLY ABSTRACT OF NAUTICAL NOTICES.

No.	PLACE.	SUBJECT.
131	SOUTH PACIFIC OCEAN	Position of Curacao Bank
132	BANKS STRAIT—Tasmania—Eddystone Point	Discovery of Sunken Rocks off.
133	AUSTRALIA—Port Phillip—Sorrento	Establishment of Jetty Light.
134	UNITED STATES—South Carolina—St. Helena Sound	Discontinuance of Combahee Bank Light
135	NEW ZEALAND—Otago Harbour	Leading and other Lights.
136	GULF OF ST. LAWRENCE—Prince Edward Island—West Point	Establishment of a Light.
137	GULF OF ST. LAWRENCE—Seven Islands Bay—Carousal Island	Re-establishment of a Light.
138	SPAIN—North Coast—Biscay and Guipuscoa	Re-establishment of Lights, &c.
139	CHINA—Hong Kong Island—Cape Collinson	Establishment of a Light.
140	FRANCE—North Coast—Dielette	Alteration in Harbour Lights.
141	DENMARK—The Sound—Copenhagen—Tre-Kroner Battery	Alteration in Light.
142	NORTH SEA—Schleswig Holstein—Amrum Harbour	Establishment of a leading Light.
143	GULF OF ST. LAWRENCE—Martin River	Establishment of a Light.
144	CHANNEL ISLANDS—Casquet Rocks	Intended alteration in Lights.
145	JAPAN—Nagasaki Harbour	Discovery of a Rock.
146	WEST INDIES—Bahama Island—Crooked Island Passage—Bird Rock	Establishment of a Light.
147	WEST INDIES—Haiti—Port-au-Prince	Discontinuance of Light.

NAUTICAL NOTICES.

131.—SOUTH PACIFIC OCEAN.—*Curacao Bank*.—Resulting from the re-investigation of the position of Curacao reef, &c., the 10 fathoms bank sounded on in H.M.S. *Curacao* in 1865 has been placed S. 38° E., 9½ miles from Curacao reef, or in lat. 15° 40' S., long. 173° 40' W.

132.—BANKS STRAIT.—*Tasmania*.—*Eddystone Point*.—Information has been received of the existence of three outlying dangers (*Victoria rocks*) off Eddystone point, Tasmania, viz.:—One rock, with 5 feet water on it at low water, lying N.N.E., half a mile from Eddystone rock; the second, with 14 feet on it, East, one mile from Eddystone point; and the third, with 10 feet on it low water, E.N.E., a quarter of a mile from Eddystone rock.

133.—AUSTRALIA.—*Port Phillip*.—*Sorrento*.—A green light is now exhibited from a lamp-post on the end of the jetty at Sorrento, which should be seen 2 miles.

184.—UNITED STATES.—*St. Helena Sound.*—*Combahee Bank.*—The light exhibited from a lighthouse on the south-east point of Combahee shoal has been discontinued, and the lighthouse fitted as a day-beacon.

185.—NEW ZEALAND.—*Otago Harbour.*—Two leading lights are now exhibited from towers erected on the sites of the two beacons hitherto used as a leading mark for crossing the outer bar. The towers bear from each other N.N.E. and S.S.W., distant 300 yards. The upper, or inner, light is a *fixed green* light, elevated 36 feet above the sea. The lower, or seaward, light is a *fixed white* light, elevated 26 feet above the sea. Both lights are visible between the bearings of S. 41° E. and S. 34° W., and should be seen 6 to 7 miles. A small *fixed red* light, not visible seaward, is exhibited on the red and white beacon at the pilot station inside Tairoa head. A light-vessel is moored on the south edge of the sand flat extending from the Sand spit, in 12 feet at low water spring tides, about one and a half cables S.W. by S. from the first red beacon. In thick or foggy weather a *gong* will be sounded on Tairoa head *every fifteen seconds*.

Note.—The leading lights in line S.S.W. lead over the outer bar until the red light at the pilot station opens out, when the course should be altered for Harrington point; and passing half way between it and the Sand spit, a mid-channel course should be kept between the buoys on the inner bar; the light-vessel should be left on the starboard hand about 70 yards.

186.—GULF OF ST. LAWRENCE.—*Prince Edward Island.*—*West Point.*—A light is now exhibited from a lighthouse erected on West point. The light is a *revolving* light, showing *one red* and *three white* flashes every one and a half minutes; the flashes attaining their greatest brilliancy *every fifteen seconds*. It is elevated 66 feet above high water, and should be seen 13 miles. The tower is a square wooden building, 67 feet high, and attached to the keeper's dwelling. It is painted in broad horizontal bands of red and white. Position, lat. 46° 37' 30" N., long. 64° 23' 10" W.

187.—GULF OF ST. LAWRENCE.—*Seven Islands Bay.*—*Carousal Island.*—A light is now exhibited from a lighthouse recently rebuilt in the place of the one destroyed by fire in 1872, on Carousal island. The light is a *fixed white* light, elevated 200 feet above high water, and should be seen 20 miles. The tower is a square wooden building painted white, and attached to the keeper's dwelling. Position, lat. 50° 5' 40" N., long. 66° 22' 40" W.

188.—SPAIN.—*North Coast.*—*Biscay and Guipuscoa.*—The lights hitherto exhibited and temporarily discontinued during the late war

operations on the Coasts of Biscay and Guipuscoa are now re-exhibited, with the exception of those at Zumaya and Cape la Higuera. Also the leading lights at Pasages, established for the use of the Cantabrian squadron, have been discontinued.

139.—CHINA.—*Hong Kong Island.*—*Cape Collinson.*—A light is now exhibited on Cape Collinson. The light is a *fixed red and white* light of the sixth order, showing *white* to the eastward between the bearings of N.N.W. and S.S.E., and *red* to the westward between S.S.E. and N.N.W. It is elevated 200 feet above the sea, and should be seen 8 miles.

Note.—Vessels bound for Victoria harbour from the northward and eastward, by keeping within the white sector of Cape Collinson light, will avoid the Bokhara and Tathong rocks, also the rocks extending from the east point of Sywan bay.

140.—FRANCE. — *North Coast.*—*Dielette.*—The following alteration has been made in the harbour lights at Port de Dielette. The *fixed* light exhibited at the end of the old pier has been transferred to the extremity of the new pier, and will show *white* seaward and *red* towards the land from the bearing of S.S.E., this bearing of the white light leading clear to the westward of Huquets de Jerbourg, and the Basses St. Gilles. The light is elevated 23 feet above high water, and the white light should be seen 9 miles. This new pier light bears N.N.W. $\frac{1}{4}$ W., distant 510 yards from the inner fixed red light; and the two lights in line will lead through the channel to the harbour. The new lighthouse, 26 feet high, is constructed of iron and painted white. Position, as given, lat. $49^{\circ} 33' 15''$ N., long. $1^{\circ} 52'$ W.

Note.—A small *green* light will indicate the position of the old pier.

141.—DENMARK.—*The Sound.*—*Copenhagen.*—*Tre-Kroner Battery.*—The light on the east side of Tre-Kroner battery has been changed from a fixed and flashing light, showing a flash every three minutes to a fixed and flashing light showing a flash *every minute*.

142.—NORTH SEA.—*Schleswig Holstein.*—*Amrum Harbour.*—A leading light is now exhibited in Amrum harbour. This light will be distant from the principal light 1,968 yards in an E.S.E. direction. The two lights in line lead into the harbour.

143.—GULF OF ST. LAWRENCE.—*Martin River.*—A light is now exhibited from a lighthouse at Martin river, south side of entrance to River St. Lawrence. The light is a *fixed white* light, elevated 125 feet above high water, and should be seen 17 miles. The tower, 54 feet high, is square, built of wood, painted white, and attached to the keeper's dwelling. Position, lat. $49^{\circ} 18' 20''$ N., long. $66^{\circ} 9'$ W.

144.—CHANNEL ISLANDS.—*Casquets Lights*.—About the beginning of April, 1877, the following alteration will be made in Casquets lights, viz., the three revolving lights now exhibited will be discontinued, and in lieu thereof, one powerful *triple flashing half minute light*, showing three successive flashes of about *two seconds'* duration each, with intervals between each flash of about *three seconds* of darkness, the third flash being followed by an eclipse of about *eighteen seconds*, will be exhibited. Also, a powerful fog-signal will be established at the lighthouse. Further notice will be given when the alteration is effected.

145.—JAPAN. — *Nagasaki Harbour*. — Information has been received of the existence of a sunken rock lying nearly midway between Takaboko (Papenberg island) and Ogami point, Nagasaki harbour. This rock (*Swinger rock*) is about 8 feet square, and the least water over it was $\frac{1}{4}$ feet. From the rock, Signal head (the north-west point of Iwo-sima), is in line with Kabuto-saki fort. Centre of Nizumi-sima bears N.N.W. $\frac{1}{2}$ W.; Centre of Takaboko (Papenberg island), W. by S. $\frac{1}{4}$ S.; Kosaki Temple, Ogami point, E. by N. $\frac{1}{2}$ N.

Note.—Care must be taken to keep Signal head well open of Kabuto-saki fort when near the locality of this danger.

146.—WEST INDIES.—*Bahama Islands*.—*Crooked Island Passage*.—On the 1st August, 1876, a light will be exhibited from a lighthouse recently erected on Bird rock, north-west point of Crooked island. The light will be a *revolving white light* of the second order, attaining its greatest brilliancy *every minute and a half*, elevated 120 feet above high water, and should be seen 17 miles. The tower, 112 feet high, is built of stone, faced with blue bricks, and slightly conical; it is situated on the centre of the rock, which is about one mile from Crooked island. Position, lat. $22^{\circ} 50' 40''$ N., long. $74^{\circ} 22' 30''$ W.

Note.—Vessels approaching this light are cautioned to attend to its bearing, as the reef on the north side of Crooked island terminates in a direction N. by W. $\frac{1}{2}$ W., and nearly one mile distant from the light-tower. The currents northward of Crooked island are variable.

147.—WEST INDIES.—*Haïti*.—*Port-au-Prince*.—Information has been received that the light exhibited from the Coal-hulk of the West India and Pacific Steamship Company in Port-au-Prince will probably be discontinued, as it is intended to remove the hulk.

HYDROGRAPHIC NOTICES PUBLISHED BY THE ADMIRALTY.

- No. 11.—Information relating to the north-east coast of Labrador, between Cape St. Lewis and Nain. By Navigating Lieutenant W. F. Maxwell, R.N., Admiralty Surveyor, 1873-5.
- No. 12.—Information relative to the extension of the South Cachops shoal, Lisbon. By Staff-Commander H. D. Sarratt, and Navigating Lieutenant J. J. Covey, 1876.
- No. 13.—Information respecting Quilimane River. Abridged from remarks and journal of Mr. James Taylor Sutherland, 1875.
- No. 14.—Information relating to Macaripe Cove, Trinidad Island, Puerto Cabello, Curacao Island, Serrana Bank, and Cumpeche Bank. Various contributors, 1874-5.

CHARTS, &c., Published by the Hydrographic Office, Admiralty, to the end of June, 1876, and sold by the Agent, J. D. Potter, 81, Poultry, and 11, King Street, Tower Hill.

No.	Scale.		s.	d.
158	m = 5·0	Mediterranean, Villa France Road, Nice and Ospizio Bay	1	6
385	m = 2·0	South Africa :—Plettenburg Bay	1	6
710	Various	Spain, North Coast :—Comillas Anchorage, Port Castro, Urdiales and Aviles River	1	0
2323	m = 0·05	Mexico and Lower California :—Manzanilla Bay to the Gulf of California; preliminary chart	2	6
2324	m = 0·05	Mexico and Lower California :—Cape St. Lucas to San Diego Bay, including Gulf of California; preliminary chart	2	6

OUR OFFICIAL LOG.

BOARD OF TRADE INQUIRIES.

Name of Vessel.	Port.	Nature of Casualty.	Judgment of Court.
<i>Alderney</i>	Southampton	Boilers leaky	Neglect of engineers. Chief engineer's certificate suspended for 12 months. 2nd engineer censured.
<i>Barbara</i>	Sunderland...	Missing ...	Vessel seaworthy. No evidence to show how she was lost.
<i>Calcium</i>	Kirkcaldy ...	Stranded...	Master admonished.
<i>Dunraven</i>	London ...	Ditto ...	Master's certificate suspended for 12 months.
<i>Ellen Owen</i> ...	Aberystwith	Ditto ...	Master's certificate returned with an admonition.
<i>Mora</i>	Hartlepool W.	Ditto ...	Master's certificate suspended for three months.
<i>Stanley Main</i> ...	Goole	Ditto ...	Master's certificate suspended for six months.
<i>Strathmore</i> ...	Dundee ...	Ditto ...	Loss due to Master proceeding at usual speed in a fog, and in known proximity to land.
<i>Surprise</i>	Maldon ...	Ditto ...	Master or crew were in default.

BOYS FOR THE NAVY.—A general order was given on the 18th of January, 1876, to the home ports, the coastguard, and Marine recruiting officers, in the following terms, viz. :—" Until further orders, the standard height for boys of 16 who enter the Navy is to be reduced from 5 feet 1 inch to 5 feet; and the qualification as regards reading and writing dispensed with in the case of boys who are otherwise desirable.

CANCELLATION OF CERTIFICATE.—BOARD OF TRADE, JUNE 14.—James Miller, master of the ship *Manitoban*, of Glasgow, having been convicted of an offence, viz., drunkenness, and imprisoned for one month at Malta, the Board of Trade, acting in exercise of the powers conferred upon them by the Merchant Shipping Act, 1854, have cancelled the certificate of competency, No. 5,813, as master mariner, granted to the said James Miller.

THE following Official Notice has been issued by the Board of Trade.—"Caution.—Illegally Supplying a Seaman.—Inducing to Desert.—At the Newport (Mon.) police-court on the 1st May, 1876, John Hammett was convicted under the Merchant Shipping Act, 1854, of illegally supplying a seaman to be entered on board a vessel, he not being a person duly

licensed for that purpose, and for such offence was fined One Pound, and 19s. costs. And at the same time and place was convicted of inducing a seaman to desert, and for such offence was fined One Pound, and 14s. costs.—Thomas Gray, Assistant Secretary, Marine Department.—By Order of the Board of Trade, June, 1876.”

QUARANTINE NOTICES.—BOARD OF TRADE, June 3.—The Board of Trade have received, through the Secretary of State for Foreign Affairs, copies of notices issued by the Portuguese Government declaring the ports of the Persian Gulf infected with plague since the 22nd of March last; the port of Maranham infected with, and all the other ports of that province, suspected of yellow fever since 1st April last; the port of Din infected with, and all the other ports of Portuguese India suspected of, cholera morbus since the 1st of June last; the port of Maceio infected with, and all the other ports of the province of Alagoas suspected of, yellow fever since the 20th of April last; the port of Santos infected with yellow fever since the 6th of April last; and those ports of the United States which were considered infected with, and suspected of yellow fever, free from that disease since the 5th of January last.—*Gazette*.

“Marine Department, Board of Trade, Whitehall Gardens, June 15, 1876.—The Board of Trade have received, through the Secretary of State for Foreign Affairs, a despatch from Her Majesty’s Minister at Madrid, with the following translation of a Royal Spanish Order respecting the tonnage measurement of coal-laden vessels in Spain:—Royal Order.—His Majesty the King (whom God preserve) agreeing with your proposal, has deigned to order:—1. That the captains of vessels laden with coals shall come provided with a certificate from the Consul of Spain at the starting point, to be issued on presentation of the certificates of freight (*polizas de fletamiento*), and setting forth the quantity of fuel which they carry; the said document to serve as a basis for effecting the Customs’ operations without prejudice to the verifications which may be made by the Custom Houses in cases of doubt. 2. That the Customs’ operations now awaiting decision, be carried out by taking the quantity which may have been declared by the consignees if they present the Consular Certificate proving that to be the quantity which the vessel received at the port of loading. And 3. That information of the decision be given to our Consuls, causing them to understand the importance which will be attached to the document which they are to issue, and pressing them to show zeal for the best defence of fiscal interests.—By Royal Order I inform you of this, that it may have due effect.—Madrid, 4th May, 1876.—God, &c., (Signed) SALAVERRIA.—To the Director-General of Customs.”

DESERTERS FROM MERCHANT SHIPS.—At the Court at Windsor, the 17th day of May, 1876. Present, the Queen's Most Excellent Majesty in Council. Whereas by "The Foreign Deserters Act, 1852," it is provided that, whenever it is made to appear to Her Majesty that due facilities are or will be given for recovering or apprehending seamen who desert from British merchant ships in the territories of any foreign Power, Her Majesty may, by Order in Council, stating that such facilities are or will be given, declare that seamen, not being slaves, who desert from merchant ships belonging to such Power when within Her Majesty's dominions shall be liable to be apprehended and carried on board their respective ships, and may limit the operation of such order, and may render the operation thereof subject to such conditions and qualifications, if any, as may be deemed expedient: And whereas it has been made to appear to Her Majesty that due facilities are given for recovering and apprehending seamen who desert from British merchant ships in the territories of His Majesty the Emperor of Brazil: Now, therefore, Her Majesty, by virtue of the powers vested in her by the said "Foreign Deserters Act, 1852," and by and with the advice of her Privy Council, is pleased to order and declare, and it is hereby ordered and declared, that from and after the publication hereof in the *London Gazette*, seamen, not being slaves, and not being British subjects, who within Her Majesty's dominions desert from merchant ships belonging to the Empire of Brazil, shall be liable to be apprehended and carried on board their respective ships. Provided always, that if any such deserter has committed any crime in Her Majesty's dominions he may be detained until he has been tried by a competent Court, and until his sentence (if any) has been fully carried into effect. And the Secretaries of State for India in Council, the Home Department, and the Colonies, are to give the necessary directions herein accordingly.—C. L. Peel.—Another Order in Council, exactly similar to the above, but applying to the Regency of Tunis, also appears in the *Gazette*.

THE ADMIRALTY AND MISSING AUSTRALIAN SHIPS.—The following letter has been sent by the Admiralty to the Committee of Lloyd's, with reference to missing vessels on Australian voyages:—"Sir,—With reference to your letter of the 3rd inst., drawing attention to the fact that three first-class ships, trading between Great Britain and Australia within the last nine months, are unaccounted for, and requesting that one of Her Majesty's ships should visit from time to time the islands lying in the ordinary track of vessels making the Australian voyage, or that one of the Australian squadron should be despatched on that service, I am commanded by my Lords Commissioners of the Admiralty to acquaint you, for the information of the Committee for managing the affairs at Lloyd's,

that, with every wish to meet their request, my Lords are unable to give directions for one of Her Majesty's ships on the Australian station to search the outlying islands, as they are quite beyond the limits of the Australian command. Orders, however, will be given for any vessel proceeding from the Cape of Good Hope to Australia, when possible, to sight the Crozet Islands sufficiently near to examine them. In making this communication my Lords desire me to observe that it has come to their knowledge that ships, in making the passage from this country to Australia, appear to incur very great risk by going too far south and making the run among icebergs and floating ice, and that if this is the general practice their Lordships cannot feel surprised at several vessels being now missing. My Lords further desire me to call attention to the first page of the sixth edition of the 'Australia Directory,' vol. i., which directs that 'after rounding the Cape of Good Hope vessels bound to the South Coast of Australia should run down their longitude on or about the parallel of 39 degrees south, where the winds blow almost constantly from some western point, and seldom with more strength than will admit of carrying sail. In a higher latitude the weather is frequently more boisterous and stormy, and sudden changes of wind, with squally weather, are almost constantly to be expected, especially in the winter season, and after passing the islands of St. Paul and Amsterdam. Islands of ice have also been encountered in these regions as was almost fatally proved by H.M.S. *Guardian* striking against one in lat. 46° or 47° S., and nearly foundering in the beginning of summer.' I am also to draw your attention to the foot-note on page 1 of the same work, indicated by an asterisk. As an illustration of the above remarks, a chart of the Southern Hemisphere is herewith transmitted, showing the late tracks of the steamer *St. Osyth*.—I am, Sir, your obedient servant, Robert Hall.—To the Secretary at Lloyd's."

MEASUREMENT OF NORWEGIAN SHIPS.—At the court at Windsor, the 17th day of May, 1876. Present, the Queen's Most Excellent Majesty in Council. Whereas by the "Merchant Shipping Act Amendment Act, 1862," it is enacted, that whenever it is made to appear to Her Majesty that the rules concerning the measurement of tonnage of merchant ships for the time being in force under the principal Act have been adopted by the Government of any foreign country, and are in force in that country, it shall be lawful for Her Majesty, by Order in Council, to direct that the ships of such foreign country shall be deemed to be of the tonnage denoted in their certificate of registry or other national papers, and thereupon it shall no longer be necessary for such ships to be remeasured in any port or place in Her Majesty's dominions; but such ships shall be deemed to be of the tonnage denoted in their certificates of registry

or other papers, in the same manner, to the same extent, and for the same purposes, in, to, and for which the tonnage denoted in the certificate of registry of British ships is to be deemed the tonnage of such ships : And whereas it has been made to appear to Her Majesty that the rules concerning the measurement of tonnage of merchant ships now in force under the Merchant Shipping Act; 1854, have been adopted by the Royal Norwegian Government, with the exception of a slight difference in the mode of estimating the allowance for engine-room, and such rules are now in force in the Kingdom of Norway, having come into operation on the 1st day of April, 1876, Her Majesty is hereby pleased, by and with the advice of her Privy Council, to direct as follows:—1. As regards sailing-ships, that merchant sailing-ships of the said Kingdom of Norway, the measurement whereof shall after the said 1st day of April, 1876, have been ascertained and denoted in the registers and other national papers of such sailing-ships, testified by the date thereof, shall be deemed to be of the tonnage denoted in such registers and other national papers, in the same manner, and to the same extent, and for the same purpose, in, to, and for which the tonnage denoted in the certificate of registry of British sailing-ships is deemed to be the tonnage of such ships. 2. As regards steamships, that merchant ships belonging to the said Kingdom of Norway which are propelled by steam or any other power requiring engine-room, the measurement whereof shall, after the said 1st day of April, 1876, have been ascertained and denoted in the registers and other national papers of such steamships, testified by the dates thereof, shall be deemed to be of the tonnage denoted in such registers or other national papers in the same manner, and to the same extent, and for the same purpose, in, to, and for which the tonnage denoted in the certificate of registry of British ships is deemed to be the tonnage of such ships ; provided, nevertheless, that if the owner or master of any such Norwegian steamship desires the deduction for engine-room in his ships to be estimated under the rules for engine-room measurement and deduction applicable to British ships instead of under the Norwegian rule, the engine-room shall be measured and the deduction calculated according to the British rules.—C. L. PEEL.—(From the *London Gazette*.)

COLONIAL CERTIFICATES OF COMPETENCY.—EXTENSION TO TASMANIA.—The following is an extract from an Order in Council, dated May 17, 1876 : —“ Whereas the Legislature of the British possession of Tasmania has by the Merchant Ships Officers Examination Act, 1874, provided for the examination of and grant of certificates of competency for foreign ships to persons intending to act as masters, mates, or engineers on board British ships, which certificates are hereinafter denominated Colonial

Certificates of Competency, and the Board of Trade have reported to Her Majesty that they are satisfied that the said examinations are so conducted as to be equally efficient as the examinations for the same purpose in the United Kingdom under the Acts relating to Merchant Shipping, and that the certificates are granted on such principles, and show the like qualification and competency as those granted under the said Acts, and are liable to be forfeited for the like reasons and in the like manner : And whereas Her Majesty, by Order in Council, dated the 12th day of February, 1876, has been pleased to declare that (subject to certain conditions and regulations therein contained) the said Colonial Certificates of Competency granted by the Governor of the said possession of Tasmania shall be of the same force as if they had been granted under the said Acts relating to Merchant Shipping. And whereas it has been represented to Her Majesty in Council that the said recited Order in Council of the 12th day of February, 1876, should be revoked, and a new Order in Council substituted in lieu thereof: Now, therefore, Her Majesty, by and with the advice and consent of her Privy Council, doth hereby direct that from and after the date hereof, the said recited Order in Council of the 12th day of February, 1876, shall be and the same is hereby revoked. And Her Majesty is further pleased, 1. To declare that the said Colonial Certificate of Competency granted by the Governor of the said possession of Tasmania shall be of the same force as if they had been granted under the said Acts. 2. To declare that all the provisions of the said Acts which relate to certificates of competency for the Foreign Trade granted under those Acts, except so much of the 139th Section of the Merchant Shipping Act, 1854, and the 10th Section of the Merchant Shipping Amendment Act, 1862, as requires the delivery by the Board of Trade to any master, mate, or engineer of a copy of any certificate to which he appears to be entitled as therein-mentioned, so much of the third paragraph of the 23rd Section of the said last-mentioned Act as requires at the conclusion of a case relating to the cancelling or suspending of a certificate, such certificate, if cancelled or suspended, to be forwarded to the Board of Trade, and the whole of the provisions of the fourth paragraph of the same Section shall apply to such Colonial Certificates of Competency. 3. To impose and make conditions and regulations with respect to the said Colonial Certificates of Competency, and to the use, issue, delivery, cancellation, and suspension thereof, and to impose penalties for the breach of such conditions and regulations."

GENERAL.

"LENNIE" HONOURS TO THE STEWARD.—Constant von Hoydonck, the steward of the *Lennie*, has been named a Knight of the Order of Leopold, and the lad Henry Trousselot, under steward, has received the Civic Cross of the Second Class. Both were presented with their decorations at Antwerp with great ceremony. One of the English jury who tried the *Lennie* mutineers being among those who took part in the proceedings.

AWARD TO CAPTAIN.—New York, June 3.—Captain Adam S. Smalley, of West Duxbury, Commander of the brigantine *Fred. Eugene*, of Portland, has received from the British Government, in acknowledgment of his humanity and kindness in rescuing the crew of the *Sparkenhoe*, of Dublin, on November 30, 1875, an elegant and valuable gold chronometer watch, with a massive chain.

TORPEDOES.—The Whitehead, or "fish" torpedo, which has cost this country a very large sum of money in order to possess its secret, and to perfect and manufacture it in large numbers, is the object of continual study and experiment, in the hope of further increasing its powers and counter-acting the various devices which have been suggested as expedients for resisting its attack. With the improvements contrived since it has been in the possession of the Government, the torpedo can be set to run a straight course of 1,000 yards under water, and explode on striking its object; it can be arranged so as to half-cock or full-cock its trigger when nearing the enemy's ship, rise near the water-line, or sink to the keel, as may be desired; and, if it misses its aim, it will release a safety-pin, and go quietly away, to be recovered at leisure. Its attack, however, could, it is thought, be effectually guarded against by surrounding the threatened ship with a strong net 40 feet or so from the hull, and it is to meet this difficulty that official research is now directed.

THE SALMON FISHERIES.—In his annual Report to the Home Secretary on the Salmon Fisheries in England and Wales, Mr. Frank Buckland remarks that, "although the salmon fisheries of the past year have not been up to their usual average, yet there is every reason to believe that the harvest of 1876 will prove prosperous, and that the Salmon Acts will continue to carry out the intention of Parliament in increasing the food of the people in the form of salmon." Last year's returns show decrease in important districts, such as the Eden, Lune, Ribble, Dee, Wye, Yorkshire, Taw and Torridge, and Dart. Notwithstanding the general falling off, the opinion of conservators seems to be that the stock of salmon is

not generally diminishing in important commercial rivers, such as the Severn, Tyne, Usk, and Ribble. As regards rivers of less commercial importance, the Exe has considerably increased, and several little rivers, such as the Solent, show no symptoms of failure. "Although the salmon harvest during the last fishing season of 1875 has been by no means so large as in previous years," remarks Mr. Buckland, "I am by no means despondent for the future, inasmuch as it does not follow that because the fish were not caught that they were not actually present in the rivers. The fact is that it is not reasonable to expect a good harvest from English and Welsh salmon rivers every consecutive year. The habits of the salmon are in reality so little understood, and their mysterious habits are again so affected by floods, droughts, and every possible change of the weather, that the control of man in capturing them from year to year must of necessity depend upon natural causes." Mr. Buckland estimates the value of the salmon caught in England and Wales at £100,000 a-year, the rivers being further capable of "immense improvement."

OUR FOREIGN TRADE.—The Board of Trade returns for the first quarter of the year 1876 show that the imports of merchandise from foreign countries into the United Kingdom were of the value of £72,079,808—an increase of £1,668,767 over the amount for the corresponding quarter of last year; but the exports to foreign countries of British and Irish produce and manufactures show a decrease to the still larger amount of £1,760,514, the total being only £34,488,768. The account with the British possessions is not so unfavourable; our imports thence were of the value of £20,242,017, an increase of £1,616,124 over the first quarter of last year; but our exports thither of our produce and manufactures reached the value of £16,892,850 a decrease of only £428,607. The totals, therefore, for the first quarter of 1876, compared with the corresponding quarter of last year, stand thus:—Imports, £92,821,820, being an increase of £3,279,891; and exports of our produce and manufactures, £50,876,118, a decrease of £2,184,121.

BOARD OF TRADE RETURNS.—From the Board of Trade returns for the month of May we gather that the total declared value of exports for the month was £17,055,504, against £18,225,152 in 1875, and £21,229,247 in 1874. With regard to the Shipping Trade, it appears that in the month of May last the tonnage of vessels employed in the trade to foreign countries was:—Entered inwards, 1,445,224; cleared outwards, 1,648,984; against 1,364,714 tons and 1,489,780 tons respectively for the same month in 1875.—In the trade to British Possessions, 210,118 tons were entered inwards and 388,425 cleared outwards, against 191,993 tons

and 298,899 tons in May, 1875. In the general Coasting Trade, 2,045,359 tons of British and 15,880 tons of foreign Shipping entered inwards during the month, against 1,912,844 tons British and 11,877 tons foreign in May, 1875. The clearances consisted of 1,829,936 tons British and 15,965 tons foreign, against 1,718,230 tons British and 6,222 tons foreign in 1875. The intercourse between Great Britain and Ireland was represented by 768,192 tons British and 2,654 tons foreign entered inwards, against 681,109 tons British and 5,567 tons foreign last year; and 681,448 tons British and 2,783 tons foreign cleared outwards, against 626,967 tons British and 1,213 tons foreign last year. The grand total in the Coasting Trade for the month was 2,061,189 tons entered, and 1,845,901 tons cleared, against 1,924,221 tons entered and 1,724,452 tons cleared in May, 1875.

COTTON STATISTICS ACT, 1868.—Return showing the number of bales of cotton imported, exported, forwarded from ports to inland towns, and returned to ports during the month ended May 31, 1876 :—

Description.	Imports.	Exports.	Forwarded from ports to in- land towns.	Forwarded from in- land towns to ports.
American	180,246	11,586	156,850	663
Brazilian	25,694	7,653	10,966	—
East Indian	67,016	27,287	32,097	—
Egyptian	8,631	1,127	15,515	—
Miscellaneous	10,190	805	914	—
Totals	291,777	48,459	216,342	663

ROBERT GIFFEN, Statistical and Commercial Department,
Board of Trade.

June 7, 1876.

THE DECLARATION OF PARIS.—Mr. H. A. Munro-Butler-Johnstone writes to the *Standard* relative to the question whether the right of blockade (such of it as is not yet abolished) does not afford us a more or less effective substitute for the abandonment of the right of seizing enemies' goods in neutral bottoms. "The answer," says the writer, "is twofold:—1. Blockades to be valid must now be effective—that is, they must constitute a real danger to a vessel endeavouring to enter or quit the blockaded harbour. Under such a condition the blockade of every port and estuary of an enemy having a long line of coast is simply impossible. How do you propose to blockade the 2,000 miles coast line of the United States; or the French coast from Dunkirk to Bordeaux, besides its Mediterranean ports? But even if you could. 2. With a railway system connecting neighbouring countries the belli-

gerent can, at a slightly enhanced cost, send his cargoes to the nearest neutral port, and there ship them on board a neutral vessel, where, under the Declaration of Paris, they will be safe from capture. Russia adopted this very natural expedient during the Crimean war, and the consequence was that her export trade, which constitutes for every nation the means of wealth, and, therefore, the sinews of war, was scarcely affected at all. Revel became her port of export instead of Cronstadt, and that was all the inconvenience she was put to. The difference between this damage and that which would have resulted from the right of search and capture can be appreciated by this fact. On the mere rumour that England intended to resume this latter right the rouble fell from 88d to 92d. On the contrary being established, it immediately rose again to par. I only take Russia as an example. The same applies to every other nation. France would send her Parisian wares to Ostend instead of to Havre, and her Lyons manufactures to Villafranca and St. Sebastian instead of to Marseilles and Bordeaux. This as against England, supposing we commanded the seas. As against every other nation in Europe, and especially the military powers who dismembered her, a similar process would—and did in the last war—tell against France. The nearest neutral harbour becomes the emporium for their trade, and the £40,000,000 annual exports of the Zollverein escape, and mock at, her cruisers under the neutral flag and the Declaration of Paris. So much for blockade. As for the change which is taking place in modern commerce, it is all in our favour if we resume our rights. There is more commerce; therefore our means of compulsion are proportionately increased. We are dependent for our bread on our imports, therefore the command of the seas is a matter of life and death to us. And the command of the seas—that is, our Naval supremacy, which follows our carrying trade, is absolutely jeopardised by the Declaration of Paris, and can only be recovered by its revocation."

BERTHON'S COLLAPSIBLE LIFEBOATS.—Some time ago it was announced that the whole of the troopships were to be supplied with a set of Berthon's collapsible boats, not as a substitute for, but in addition to, the ordinary complement of ships' boats; one of their advantages being that of easy stowage. We believe the orders for these boats had a cash value of about £13,000 sterling. A few were supplied to the *Assistance* and the *Jumna*, but before proceeding further Sir William Mends, the Director of Transports, determined to subject them to a crucial test, in order to ascertain whether they were fully adapted for the multifarious work they were expected to perform. For it must be remarked that Mr. Berthon's invention was not only intended to serve as lifeboats in cases of emergency, but to be employed as troop-boats, and also as means for

the transport of horses and guns, for which the moveable gunwales were supposed to be peculiarly fitted. The *Assistance's* boats have been found to act very well as troop-boats when they could be distended before being used. The latest experiments, however, make it exceedingly doubtful whether the collapsible boats could be easily managed in case of sudden necessity for their use arising, while as regards their capacity for carrying heavy weights the experiments have proved them utter failures. The first trial was made at the Royal Clarence Victualling Yard at Portsmouth. The boat under trial was a horse-boat intended for the Indian troopers, and measured 40ft. by 14ft. It was distended to its *maximum* flotation, and ninety robust men belonging to the Royal Marines, in full marching order, were placed on board. The keel gradually rose and the sides sank, but, thanks to the admirable discipline of the men, no untoward consequences ensued. But the crucial test was made in a similar boat near the coastguard station on Southsea beach. The result was even more disastrous. Not only was the boat unable to bear the weight, but it was found impossible to raise the gunwale and so keep out the water. The trial was made under the supervision of Captain Kelly, of the *Malabar*, and Lord William Seymour, Quartermaster-General of the Southern military district; and among those present were the Rev. Mr. Berthon, the inventor of the boats, Vice-Admiral Sir William Mends, and Captain Brownlow, Surveyor of Shipping. The trial could not have been made in more favourable circumstances. The water was perfectly smooth and the tide rising. The port gunwale having been lowered, an attempt was made to load the boat with a 16-pounder field piece, with horses, gunners, ammunition, and other appurtenances ready for action. The weight of the whole was estimated at about seven tons. When eight horses had been placed inside, the keel grounded on the shingle, and the water rose to the level of the platform and began to flow into the boat. However, by means of a fore and aft tackle pulling upon derricks the gunwale was sufficiently raised to prevent more water finding an entrance, though had there been the slightest sea on the boat must have been swamped at the outset. The gun having been unlimbered was next run along the brow, and then the limber was placed on board. The additional weight brought the gunwale under water, and though an additional tackle was adjusted amidships all the efforts of the bluejackets to lift it were unsuccessful. Several seamen plunged into the water to assist to raise it, but all the tugging, in consequence of the shortness of the derricks and the inadequate purchase obtained, only tended to bend the gunwale inwards. In the meantime the water, which had been pouring into the boat, caused the whole to sink bodily, and horses and men were left floundering in the sea. The uproar caused the horses to become somewhat restive, but they were

got out without any accident occurring. The boat which had been tried on the previous day was lying alongside, the intention being to test it in a similar manner with the waggon of the field-piece and the same number of horses, but after the failure of the first experiment it was not deemed necessary to proceed further, and the two collapsible boats were taken in tow by a steam-pinnace and taken into harbour. The cost of the boats is £250 each. If these boats fared so badly in broad day-light, and smooth water, when in charge of highly-trained and cool men, it is not difficult to understand how serious would be the result if their use were permitted on board emigrant ships where they might have to become at a moment's notice, on a dark tempestuous night, a receptacle for terrified women and drunken and ferocious men under little, if any, command.

COASTGUARDSMEN OF THE PRESENT DAY.—“As for the occupants of these oases in the wilderness, the lines would seem to have fallen to them in very pleasant places. The sturdy women are blooming in the redundancy of vigorous health, and the chubby children who are tumbling about on the sand are in as sleek case as turtles or porpoises. Even were less attention paid to sanitary details, it would be difficult for the most perverse ingenuity to make these breezy places unwholesome. Ordinary ailments can scarcely lay hold of constitutions enjoying a perpetual air-bath, where brine, oxygen, and iodine are the chief ingredients; and the most remote association with disorders of the nerves would be on the face of it absurdly impossible. The husbands and fathers of the little households are just what one might expect in men who lead the most salubrious lives in the world, and have as few cares as may be. Unless you are of unusually robust make yourself, you are disposed to envy them their stalwart frames, their broad shoulders, their deep chests, and the solid under-limbs on which they roll themselves along. Their easy uniform of dark woollen jersey, with broad collars flung back to let the breezes play round the muscular throat, looks the very picture of serviceable comfort. You can tell at a glance that life sits lightly on them, nor are their duties by any means onerous. They have to keep a bright look-out out in the day-time for nothing in particular, which comes very naturally to them; for they have got into the habit of gazing into vacancy. Now and then they are taken out for some gentle exercise in the long-boat of the station, and take a leisurely pull along the coast, which has a good deal of the character of a pleasure trip. They have some night patrolling to do, which is very much a matter of form, now that smuggling has become a thing most unheard of. The night walk may not be always agreeable, when they have to face wind and rain in broken weather, or

swallow down mouthfuls of the damp sea fog that is swathing everything in a watery mantle. Those heaps of white stones which mark out their beats along the southern chalk cliffs, are suggestive of promenades that must often be dreary, and occasionally have a dash of danger as well; for a blunder in their bearings might precipitate them down a depth of a few hundred feet among the shingle and seaweed on the beach below. But on such weather-beaten headlands they have shelter-houses erected, where they may seek temporary refuge in the wildest nights, and on the whole, these solitary nocturnal walks must be a rather agreeable variety in their existence. No human lot is perfect, however, and the drawbacks to theirs are its routine and monotony. They may, indeed, look forward now-a-days to an annual cruise in one of Her Majesty's ships, when they enjoy complete change of scene, and revive their old nautical associations. And, occasionally, when vessels are in distress on the coast, they have the excitement of putting out to the assistance of the crew, or working the patent rocket apparatus that is to establish means of communication. But, as a rule, they are driven to betake themselves to desultory lounging, in which, with incessant practice, they become highly accomplished. Occasionally this habit, conspiring with circumstances, tends somewhat to demoralise them. The experienced visitor to famous points of view in the vicinity of popular watering-places learns to sheer away as he sees the preventive man standing off and on with an elaborate air of attention to everything except the stranger advancing in his direction. For when the unwary wanderer comes within easy hailing distance, the look-out is apt to bear down suddenly and grapple him. Then the customary observations as to the weather are followed by the friendly tender of the telescope, and you know that before you may pursue your way you must pay your shilling, if you care not to be considered shabby. But the Coastguard watch in less frequented places is usually a well-informed local guide, of frank, but by no means obtrusive manners, with a fair share of intelligence, and possibly a store of professional traditions. He will not only explain the geography of the neighbourhood, and enlighten you as to aquatic matters generally, but he will confide to you, as you grow friendly, how time hangs heavy with him, and will indulge in half-grumbling reminiscences of those good old times when the duties of the preventive guard were no sinecure."—*Saturday Review*.

THE SAILORS' INSTITUTE AT ODESSA.

To the Editor of the "Nautical Magazine."

H.B.M. Consulate-General, Odessa, Russia,

June 15th.

SIR,—For some time I have been wishing to write to you about a subject of great interest to me, but have put it off, hoping we might be able to raise the necessary sum without troubling you ; but, alas ! the subscriptions have fallen short of our needs, and I venture to make this appeal to you, having been told that if I am fortunate enough to enlist your sympathies, my cause will be most successfully pleaded. It is for the Sailors' Institute at Odessa. I forward you a plan of the building. It is just completed ; but there are 8,000 roubles, equal to £400, still needed to pay the debt on it, also to furnish it for the use of the sailors. I know that it will be urged that buildings of this kind are not necessary here as they are in England, where ships' crews are paid off ; that a man's ship is his home at a port like this, and that he ought not to be entrusted on shore. If he would remain on his ship the argument would be unanswerable ; but they *will* come on shore, and it is to keep them from all the dangers and temptations that beset them on shore, to prevent their going to the low drinking shops and haunts of vice that infest the harbour, and from which they return to their ships too often drunk and incapable of working, even if it does not happen as it does sometimes, that they are lodged in the prison for fighting and stabbing, that this Institute has been built. It is for giving them some clean and home-like place where they can spend their time while they are on shore ; for giving them rational amusements and occupations ; for making them feel in this distant port that their well-being and comfort are thought of and cared for ; and last and best for providing them with means of attending Divine service every Sunday while their ship is in this port. Newspapers and books will be supplied them, also chess, backgammon, &c., &c. Mr. Clarke, our clergyman here, will give a service every Sunday evening. In one respect the building will partake essentially of the character of a home, for there will be rooms for convalescent sailors, for sailors unavoidably detained here, and for shipwrecked sailors. It will be under the immediate superintendence of an agent and matron, acting under the general supervision of the committee of management. Although the Institute is not yet open for the general use of the sailors for want of means to furnish it, yet it was opened last Sunday evening for Divine Service, when the attend-

ance of sailors was very good. If you knew how much an institution of this kind was needed here—how much I have the subject at heart—you would not be surprised at my trying to obtain your valuable aid; and this must be my excuse for troubling you.

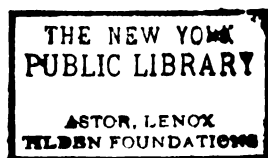
My husband's bankers, Messrs. Cocks, Biddulph & Co., 48, Charing Cross, have kindly consented to take care of the funds that we may be fortunate enough to receive.

Yours faithfully,

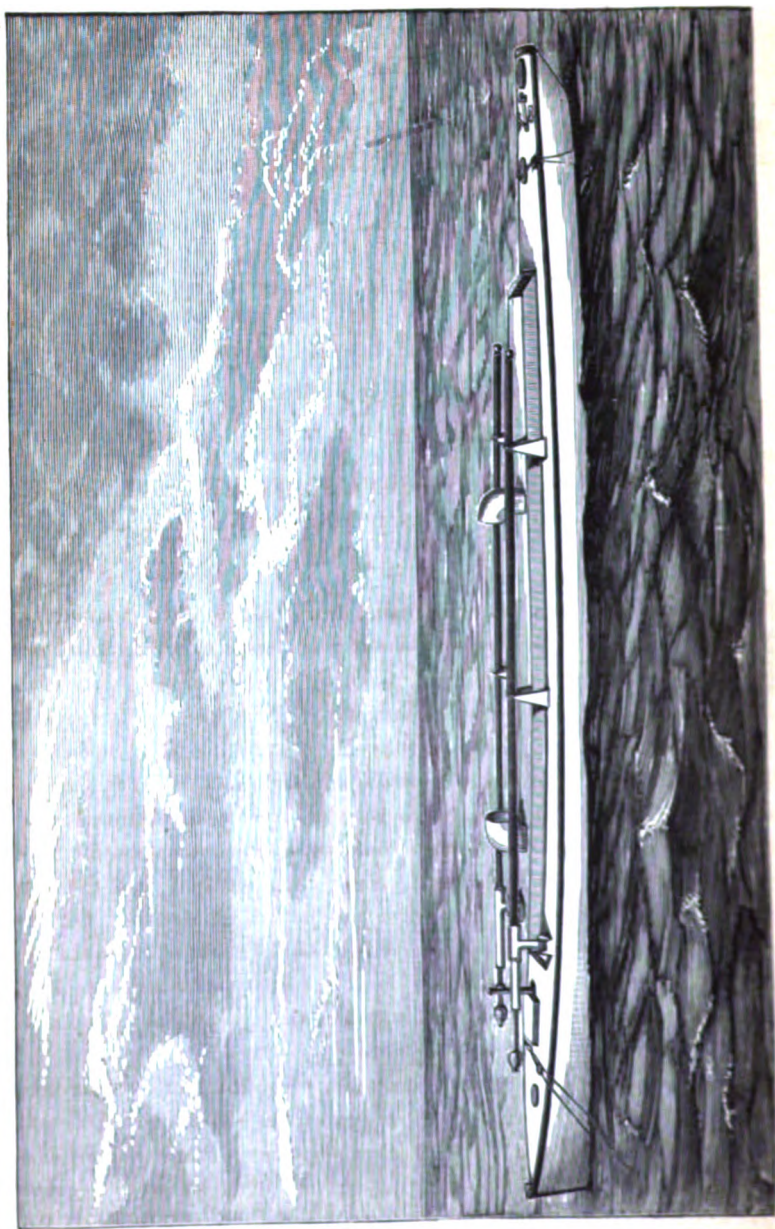
SUSAN STANLEY.

[We are glad to give publicity to the above letter, and heartily wish our lady correspondent may meet with some satisfactory response among our readers. The undertaking on behalf of which she pleads so eloquently most certainly deserves encouragement; and we think the best way to win supporters is to let the fair advocate speak for herself. We have often spoken of the value of a little healthy attraction for sailors at foreign ports to keep them away from the low haunts always to be found at seaport towns; but we venture to re-assert an opinion we have before expressed, that the promoters of this establishment must beware, lest they frighten away by too much religious service the very men they desire to entice. The softening and elevating influences of the Christian religion are too well known to need any words of ours, but at the same time it will be found that Mercantile Jack as a rule fights very shy of anything connected with churches and religious services, and therefore it is perhaps not advisable to make that element in the Sailors' Home too prominent. We commend the cause of the Odessa Home to the kind sympathy of those among our readers who can afford to assist the undertaking, for it certainly can be made most servicable to a large number of British seamen whose duty takes them to the port.—ED.]

THE Committee of Officers appointed to consider the position of Engineers in the Navy have completed their report, and suggest that Inspectors of Machinery shall rank with Captains, Chief Engineers with Commanders, and Engineers with Lieutenants. The pay of these Officers is proportionally increased. Chief Engineers, it is suggested, shall be appointed to ships under Commanders as well as those under Captains, thus largely increasing the number of Chief Engineers required for the Service. Engine-room artificers are also to have better pay.



TORPEDO BOAT.



THE
NAUTICAL MAGAZINE.

VOLUME XLV.—No. VIII.

AUGUST, 1876.

OUR MARITIME DEFENCES CONSIDERED, COMBINED WITH
THE MANNING OF OUR MERCHANT SHIPS.



ALTHOUGH Great Britain, from her isolated position, is much more secure against foreign aggression than any other European nation, the possibility of invasion has ever been a source of the deepest anxiety to her people, and frequently of needless alarms. Indeed, from the time when Napoleon I. commenced that career of territorial conquest which ended in his exile to St. Helena we lived in the midst of alarms. Nor did these cease with his overthrow, or when all that was mortal of that restless conqueror lay entombed far away from the strife of nations. Since then we have had frequent rumours of invasion, and millions of money have been expended for our protection. I shall not stop to inquire into the cause of these alarms, although interested motives, apart from the safety of the nation, have had much to do with them: it is sufficient for my present purpose to remind my readers of their existence.

Although events have proved that for more than half a century the vast sums of money expended on our Army and Navy might in a great measure have been saved, I cannot coincide with those writers who attempt to show that our preparations for war have on every occasion been a waste of our national resources. Far from it: our warlike attitude, while it no doubt induced other nations to increase their armaments,

may in more than one instance have prevented war, for nations prone to war are, in the motives which actuate their conduct, frequently not unlike the common burglar who calculates the risks before he pounces upon his prey. Indeed, I go so far as to admit, though I considered the rumours of invasion in my own time as something worse than idle, that the Volunteer movement a few years ago, while tending to place at ease the minds of timid people, would have produced a material effect on would-be invaders, if the thought of invading this country were ever seriously entertained by any Government.

I am no alarmist; on the contrary, I entertain the opinion—held by too few men who have taken part in public affairs—that all differences between nations should be settled by arbitration. But while holding that opinion, I cannot shut my eyes to the fact that human nature is as prone to quarrel as ever. In our courts of law litigants frequently expend, in contesting money payments, a very great deal more than the sum at issue, to obtain what they call “their rights.” Ludicrous cases occasionally occur, especially amongst my own countrymen (Scotsmen), where a litigant will carry a question respecting the position of a ditch or hedge, of practically no value to either of the contending parties, from the Court of Session to the House of Lords to decide to whom the ditch or hedge may belong, or who should clean the one or trim the other; and hundreds, and even thousands of pounds sterling are sometimes expended in the settlement of a question involving an outlay of a few shillings.

As it is with individuals, so it is with nations, and I suppose it is for these reasons that monarchs and princes, born to rule and accustomed to have their own way at home, as well as oppressed nationalities, still decline to settle their disputes by any means short of war. It, however, says little for the progress of civilisation that they do not attempt by every means short of national honour to settle their differences amicably, instead of mustering legions of innocent men, who are frequently altogether ignorant of the cause of dispute, to bring it to an issue by the sacrifice of their lives and the ruin of their homes—in a word, by the same brute force which savages still adopt, and only differing from it by more scientific and more wholesale modes of destruction.

Although at the time sharing with many other persons the feeling that £3,000,000 was much too heavy a penalty for us to pay for the loss the mercantile community of the United States sustained by our negligence during the late unfortunate war in that country, I should rather, when it was decided we were wrong, have paid ten times that penalty than have gone to war. So far from being lowered in the estimation of all good and wise men by the course we adopted, it redounded to our honour as a nation. Great Britain stands higher now than she

would have done had she gone to war and won her cause by force of arms—to say nothing about the suffering and loss that war would have entailed on the people of both countries.

Nevertheless, with all my hatred of war and anxiety for peace, I can see few signs of the time when nations are to beat “their swords into ploughshares and their spears into pruning hooks.” On the contrary, the gloomy hosts of war appear to be gathering around us, more darkly and densely than ever. What mean those vast armies which the nations of Europe are now collecting? For what purpose does Germany increase her legions of armed men, and seek for seaports to construct stupendous ironclad ships* of war? Wherein lies the necessity of Russia, France, and Italy, with few or no colonies, and only a comparatively small maritime commerce to protect, expending huge sums of money in the construction of vessels of that description?

These are questions not easily answered, unless we find their solution in the deep-rooted animosity which exists between France and Germany, or in what is known as the perplexed and critical “Eastern Question,” wherein we may unhappily be involved, against our will, at any moment. In such an unfortunate contingency, this island offers so many tempta-

* Germany has thirteen ironclads afloat, three of which are turret-ships—viz., the *Preussen*, *Friedrich der Grosse*, and the *Grosse Kurfürst*. The first of these was built at the private dockyard of the Vulcan Company, at Stettin, and was launched in November, 1873; the second-named was built at Ellerbeck, near Kiel, and launched in September, 1874; the third-named was built at Wilhelmshafen, and launched in September, 1875. They are full-rigged vessels, and constructed after the model of the British ship *Monarch*. There are also three broadside frigates—viz., the *König Wilhelm*, built at the Thames Ironworks, and reckoned to be the most powerful in the fleet; the *Kronprinz*, built by Samuda; and the *Friedrich Karl*, built near Toulon. Then there are two casemated frigates, the *Keiser* and the *Deutschland*, both built by Samuda, and delivered at Wilhelmshafen last year. There are also three ironclad corvettes, the *Leipzig* and *Hansa*, both built by the Vulcan Company, near Stettin, and the *Elisabeth*; the monitor *Arminius*, and the little armoured vessel *Prinz Adalbert*, make up the thirteen, the former built in France, and the latter by Samuda, at Poplar. The corvette *Elisabeth* has just undergone a thorough repair at Dantsic, and was commissioned on June 1, instead of October 1, as was at first intended. She is now taking in her provisions and ammunition, and proceeds shortly to Philadelphia. The turret-ship *Preussen* has just made her trial trip at Swinemunde, and the result is reported to be satisfactory. Besides the above-mentioned vessels actually afloat, there are several on the stocks and in various stages of progress, and these when finished will raise the fleet to a very respectable degree of strength. The fortified places, both on the German seacoast and inland, are now about to be enlarged and strengthened, the places mentioned being Dantsic, Königsberg, Glogau, Nievre, Memel, Pillau, Kolberg, Swinemunde, Stralsund, Freidrichsort, Sonderburg, Düppel, Wilhelmshafen, the mouths of the Weser and the Elbe, Cologne, Coblenz, Spandan, Cuestern, Posen, and Thorn.—*Army and Navy Gazette*, June, 1876.

tions that, however improbable, invasion is far from an impossible event; and, considering the enormous amount at stake, we must ever be prepared to resist any attempt to land a foreign army on our shores or blockade our ports.

If our strength be measured by our *wealth*, by the number of iron-clads we have now afloat, and by our resources in other respects as compared with other nations, we are perhaps more powerful now than we were when "all the world was in arms against us." But the relative positions of nations have, in various important matters since then, materially changed. Nor must we flatter ourselves with the too popular notion that money can do everything, and that we could turn our resources to account between the time when war was declared, and when operations actually commenced. A complete organisation of our forces, standing and reserve, and a thorough knowledge of how these and our vast indirect resources could be promptly and effectually applied, would be of more importance to us on the outbreak of war than the large capital at our command, however serviceable that might be in the long run. One great cause of our weakness in 1854 was the want of this organisation, and so far as regards reserves of trained seamen and the prompt utilisation of merchant ships and private dockyards, we are really in no better position now than we were then.

Unfortunately, the great Continental Powers are now armed ready for war at, practically, a day's notice, and by means of the telegraph and steam, by land and sea, these forces could be concentrated at any given point in Europe, even at the most available parts of our shores within four, or, at most, six days, from the time of the declaration of war. Thus, a combination of Powers arrayed against us, would necessitate on the first brush of war the employment of the whole of our immediately available resources to protect our great *entrepôts* of maritime commerce, on which we depend, not merely for supplies, but for our daily food, and to repel invasion.

In the meantime, how are our Colonies, our coal depôts, and our vast fleets of merchantmen to be protected? Herein rests our weakness, which unfortunately increases with the improved appliances of war, and the extraordinary extension of our Mercantile Marine.

The declaration respecting Maritime Law, adopted by the European Powers assembled in Congress at Paris, on the 16th April, 1856, affords, which it never did before, protection to enemies' goods under a neutral flag, and to enemies' ships with neutral goods on board, not contraband of war. I frankly admit, and I admit it with satisfaction, that the progress of nations and other events had rendered that declaration imperatively necessary; but unless we can induce all nations to take one step further in advance and adopt the proposal more
 we officially offered by the United States, that private property

wherever found, should be free from capture, our maritime commerce would, in the event of war with that country, be swept from the seas.*

In the course of the discussions to which I have (in the foot-note) referred, Lord Palmerston, then First Minister, remarked, "The matter was one which anybody would see was a subject which required the gravest and most deliberate consideration on the part of the British Government, as, whatever might be the opinion at the first blush, one way or another, no one could fail to perceive, on reflection, that the question was one deeply affecting all the great interests of the country—commercial, political, and naval; and it was clear that no answer could be given to such a counter-proposition" (referring to the proposal of the United States) "without long and mature consideration."

Although the Government of the United States subsequently receded from that proposition, we have reason to hope, from the well-known policy of America, that if the question were again raised, its statesmen would consent to the Declaration of Paris in its original integrity, embracing the abolition of privateering. To that great national question I shall, hereafter, more fully refer in a separate article.

As the future action of the United States is, however, a matter of conjecture, it behoves us to consider how we would stand, under existing circumstances, in the event of a great European war? So far as regards ships, our means of defence have materially changed. Within the last few years we have expended very large sums of money in the creation of huge ironclads, or floating citadels, each of which, when fully equipped and ready for sea, costs somewhere about half a million sterling. But have we ever asked ourselves the question, how these huge flotillas are to be employed in the event of war beyond, for instance, the protection of the mouths of the Thames, Mersey, Solent, and Medway, or the blockade of the principal Forts of the enemy? And what would be their value to us in even these important services, considering their cost? Some are to mount guns of 81 tons weight—unquestionably huge instruments of destruction—but will they be as efficient, even for the purposes I have named, as vessels of greater speed, and of only one-tenth their cost? *I doubt it.* Nor do I exclude from my doubts such vessels as the *Inflexible* and *Dreadnought*, which are each, I understand, to mount four of these guns on turrets, and to cost, ready for sea, £750,000!! In the destruction of fortifications, as at present constructed, an 81-ton gun would unquestionably make fearful havoc, but against earth mounds of ample depth, or batteries

* I brought this grave matter under the notice of the House of Commons in 1857, and again March 14, 1860, and a letter I addressed to Lord John Russell, the then Secretary of State for Foreign Affairs, on the subject, was ordered to be published. (See Parliamentary Paper. Belligerent Rights—No. 151. Session 1860.)

on the Moncrieff system, it would be very little more effective than the old 64-pound gun; while its efficiency—considering its cost—for the purpose of protection, would be far from complete. A swift ship could run the gauntlet past one of these floating citadels without much chance of being hit by its ponderous shot. I question, if in action, each of these guns could be fired every 10 or 15 minutes, and that space of time represents, in a swift steamer, 3 or 4 miles; an enemy's cruiser, if not hit (and the chances are five—if not ten—to one in her favour), would be out of range before a second round could be fired.

Although ordinary vessels could not attack them with much prospect of success, they could evade them, and play terrible havoc with the property they were meant to protect. For these reasons I am disposed to think that we have recently been expending much more money on these ponderous floating batteries than their value to us in the hour of need would justify; and that we have, in a great measure, adopted this policy because other nations are building ships of like huge dimensions, is a matter hardly to be questioned.

Instead of troubling ourselves about what other nations do, I think we should consider what is requisite for our own wants. Such has been our wisest policy in all commercial matters, and we shall do well to adhere to it in our preparations to meet the eventualities of war.

Tactics and science will now have more to do with the settlement of disputes between nations than actions fought at close quarters "in line of battle." Indeed the French are said to have quite given up the idea of fighting in line or formation. The indomitable bull-dog courage of our seamen will now be of much less avail than it was at Copenhagen or Trafalgar; and the swift ship, long-range, and scientific gunner, will carry the day in naval engagements. Let us face these facts. It is necessary we should do so, more especially as another instrument of destruction, much more terrible than the largest ironclad, has now been discovered. The destructive power of torpedoes, and their value for the protection of harbours, have been known for some years.* They are, however, now to be employed in another and apparently more effective and destructive form.

Messrs. John J. Thornycroft & Co., of Chiswick, have already constructed torpedo boats for the French, Austrian, Norwegian, Swedish, and Danish Governments. In the Frontispiece will be found an illustration of one of

* Besides the Spar torpedo, worked from a boat, we have Harvey's towing torpedo, easily managed in a swift steam vessel of small size; and the Whitehead fish torpedo, the most formidable engine of destruction yet invented. These are now made 19 feet long, with a speed of from 20 to 22 knots per hour, which they maintain for 800 or 1,000 yards. They can also be discharged from the broadside of a ship, going full speed, from a carriage placed in the upper or gun deck of the ship.

these boats ready for action. She is 67 feet in length, by 8½ feet in width; is built of steel, and is rifle-proof in the parts containing the machinery and the crew engaged in working the torpedoes. On her trial trips she steamed in smooth water 18 knots an hour, and maintained that rate of speed for two consecutive hours. The cost of each of these vessels fully equipped and ready for sea is about £4,000. There are two poles, about 40 feet in length, ready to be projected from the bows, and to the end of each of these there is attached a torpedo* or copper cone, resembling in form a pine-apple, which is charged with, either 88 lbs. of gun-cotton or 25 lbs. of dynamite. This cone explodes the instant it strikes a solid body, or it can be exploded by anyone on board the boat by means of a firing key on the wire connecting the cone to the battery. By a very simple process these torpedo poles can be run out beyond the boat's bow, and instantly lowered to an angle at which the end of the torpedo cone would strike a ship's bottom, or they may be projected from the boat's side so as to strike a ship at from 6 to 9 feet below the water-line when the torpedo boat is running alongside, and should the officer in charge think the cone will not strike the ship, he can fire the charge by means of the firing key on board. In either case the force of the explosion, even when fired within 8 feet of the ship, would be so great as to sink almost instantaneously the largest armour-clad. By experiments which have been recently made, a torpedo charged to the limited extent named, made a hole through a ship's bottom 7 feet in width, and 18 feet in length! In a word, tore up, in the most frightful manner, the plating and planking of the vessel against which it was exploded.

A ship costing half a million sterling, and with, what is far more precious, 600 to 700 men on board, might thus be instantaneously destroyed by a torpedo boat costing only £4,000, and with less risk to herself than might be supposed; for experiments have shown that the explosion of the torpedo cannot in any way injure the vessel which carries it, unless she gets entangled with the wreck of the monster-ship she has destroyed.†

* The torpedo gear is so arranged that an attack may be made directly ahead of the boat, in which case the boat must be stopped and backed off her enemy immediately after the explosion, or on the broadside, when the boat may be kept going ahead all the time, and so saving the time which would be otherwise lost in stopping and backing.

† The importance of speed in such an operation as sinking an ironclad can scarcely be overrated. The difficulty of hitting a moving target is well known to those who have tried to hit the running deer at Wimbledon; and the velocity of a torpedo boat running at 18 knots is over 30 feet per second. High speed also gives men confidence, by affording them a chance of returning safely from a

These are facts of momentous importance to us as a nation, and worthy of the greatest consideration before we construct any more 81-ton gun ships. The more so when we know that the larger the vessel the more she is likely to fall a prey to the swift torpedo boat. Indeed, her size would render her more susceptible to attack, and her slower speed would render it more difficult to get out of the way of an active enemy.

However secondary, this subject should, in a pecuniary point of view, receive the immediate consideration of our statesmen, more especially as we are already heavily taxed for the cost of naval armaments, to I fear comparatively little purpose. One hundred and twenty of these boats could be constructed at less cost than the sum we have expended on our last floating citadel.

But let us consider the question with the aspect of humanity. It is true that the professed object of war is to "burn, plunder, and destroy." In itself it was horrible enough in the days of our forefathers, but it has become much more horrible since science, which was meant to improve and elevate the human race, has been turned so largely to account for our destruction.

Civilised nations have, however, restrained the use of wholesale means for destroying human life. To poison the wells of an enemy's country, or to throw red hot shot into their towns, have hitherto been denounced as the extremes of barbarity; and the application of other terrible instruments of destroying lives in mass invented in our time (known as "infernal machines"), has been repudiated by all nations with indignation and scorn.

But wherein is the difference between such instruments and torpedoes? If the principle as applicable to the laws of humanity is sound in the one case, it is equally so in the other. Statesmen have always held that combatants should have a fair chance of displaying their bravery, or at least of defending their lives. Indeed, the stand-up fair fight has ever been considered one of the so-called "glories of war." But while the use of torpedoes must put an end to the former mode of conducting maritime warfare, it may, happily, have the effect of putting an end altogether to war in any shape or form whatever, for war would then become so terrible that princes and statesmen, as well as nationalities, would hesitate long before they embarked in it.

necessarily dangerous expedition, and thus lessens the difficulty of finding men for such work.

Another important matter in such operations is silence, and this is secured in Messrs. Thornycroft & Co.'s boat by making the engines condensing, so that the puffing noise in the chimney, which is almost a distinguishing feature in the ordinary steam launch, is entirely done away with.

How, indeed, could we order 600 men, for instance, to coop themselves up in a large armour-clad, to be drowned like rats, without any chance or hope of defending themselves against the horrible ravages of such an infernal instrument as a torpedo boat? And to attempt to enforce our orders might produce the most disastrous results. Our seamen are reluctant even now to enter for these ships, and the fate of the *Captain* and *Vanguard* has materially increased their reluctance; they much prefer a smart frigate, where their individual skill and bravery can be displayed to advantage: and were it not for the continuous service, I doubt if our armour-clads could be manned in peace: how then would it be in war? But there are still other matters requiring consideration.

While we have been concentrating our force in a necessarily limited number of huge floating batteries, we seem to have overlooked the fact that we had colonies and largely increasing fleets of merchantmen to protect in the event of war. It is true that these fleets, for the reasons I have named, would either be placed under neutral flags or disappear on the declaration of hostilities; the war premium itself would necessitate this course even though well protected; but would either of these humiliating eventualities tend to our interests, or to a successful termination of the war? On the contrary, while our honour would be sullied by hoisting a neutral flag for the protection of our property, we could no longer hope to maintain our position as the first of maritime nations, and our carrying trade on the ocean, if once transferred to a foreign flag, would not easily be regained.*

Such are a few of the reasons which lead me to feel that though our naval expenditure of late years has been enormous, we are at present, *all things considered*, less prepared to meet the various contingencies of war which would arise than ever we were at any other period of our history.

Now that our merchant vessels traverse every sea, and that the most valuable portion of our mercantile commerce is conducted in steamers, we could no longer, I fear, protect that commerce by means of convoys. We might, however, make arrangements in peace whereby a considerable portion of our merchantmen might protect themselves,

* I dare say all merchant steamers of over 12 knots speed would trust to their *heels* and a couple of good chase guns in the case of war, but our 8 knot merchant steamers and our sailing vessels, unless registered under a foreign flag, would have to sail under a convoy of ships of war with a strong force of armed merchantmen as auxiliaries. We should also require squadrons to protect all narrows, and great centres of trade, such as the Gut of Gibraltar, Suez Canal, St. Vincent, Hong Kong, English and Irish channels, and have cruisers stationed at intervals along the usual great routes of commerce.

and likewise render no mean assistance to the nation in the event of war. To that question I shall hereafter revert. But as our weakest point is a scarcity of seamen, I am anxious to consider that subject in all its bearings before dealing with any other, especially as I am more familiar with it than with matters relating to the equipment of the Royal Navy.

At present we have, I understand, a sufficient number of men for the ordinary peace establishment, and by means of the six training-ships under the control of the Admiralty, and the continuous service system, that number, I am informed, can be maintained although with some difficulty, and at a greater cost than appears to be necessary. Our reserves of seamen however fall far short of what would be required in the event of war, and would barely suffice to man sufficient vessels for our first line of defence. Hitherto we have looked to the merchant service for our supplies, but that service could no longer render us the requisite aid. British seamen have become exceedingly scarce, so much so that large numbers of our merchantmen are now manned by foreigners; and although a considerable portion of our merchant vessels would be thrown out of employment, or, what is more probable, transferred to foreign flags, many of the British seamen would follow these vessels under any flag, so that their supply for the wants of the Navy would, under either of these circumstances, fall far short of our demands. But even if the supply were ample, their ignorance of the routine duties of a man-of-war, and especially of gunnery, in these days when so much science and training have become necessary, would render them of little more value than landmen during the first three or four months after they were embarked—a matter of no mean consideration, as any disaster to our ships on the first brush of war might prove irretrievable: and wars are now likely to be sharp and short.

To obtain the requisite supplies of able seamen for our Merchant Service, so as to have at all times in that service, at a moderate cost, an ample supply of trained men for our defence in the hour of need, although it has been dealt with by numerous writers and speakers, and been considered by various Committees and a Royal Commission, is a problem which has not yet been solved. It seems easy of solution, but it is surrounded with difficulties, and the more I study the subject the more I feel my incompetency to overcome them.

Merchant seamen are not accustomed to men-of-war; they do not like to be subjected to the discipline necessary on board of such vessels, and they can generally find, apart from the remuneration, other occupations, on shore or afloat, more congenial to their tastes and habits. To render that service acceptable to them, and, at the same time, to qualify them for the duties they have to perform, a certain amount of prelimi-

nary training is absolutely essential, and herein arises various other difficulties. The nucleus is easily to be found in boys below the age of thirteen or fourteen, from parishes and industrial schools. But our shipowners say that boys of that age are no good to them, and they ask, with much reason, "why should we be saddled with the expense of training such boys; for when they are good for anything, they leave to find other employment, either on shore, in the service of the State, or in vessels of other countries?" On the other hand, the Government asks, "why should the public be taxed to train boys for the Merchant Service any more than for any other branch of trade, more especially as the Admiralty train all the boys that are required for the peace establishment of the Royal Navy?"

Such are a few of the difficulties to be encountered in any attempt to solve this important question. But as they are not insurmountable, I purpose examining the leading arguments which have been offered in Blue Books, and in numerous speeches and pamphlets. Before doing so, it may, however, be desirable to briefly trace the history of manning ships during the last two centuries, both as regards the Royal Navy and the Merchant Service.

W. S. LINDSAY.

(To be continued.)

CHRISTOPHER COLUMBUS AND SEBASTIAN CABOT.

(Continued.)



OUR previous notice of the discovery of the continent of North America broke off with the voyage of Sebastian Cabot in 1498, in which he reached a latitude as high as 58° N. When we speak, however, of the discovery made by Sebastian Cabot, we ought perhaps to describe it as a re-discovery, if such a term does not involve a contradiction of ideas, for there are Icelandic records, on which reliance can be placed, which carry back the discovery of the North American Coast by Europeans to the latter part of the tenth century. Iceland itself was first occupied by the Northmen in the last quarter of the ninth century, and in the last quarter of the next following century Greenland was occupied by Icelandic settlers, although there is a tradition amongst the Icelanders that Greenland had been visited in 877 by an adventurous Northman named Gunnbjorn, of which tradition the name of a rock between Iceland and Greenland,

called Gunnbjorn's Skar (Gunnbjorn's Rock), was regarded as a memorial.* It was in the course of a voyage from Iceland to Greenland in A.D. 990 that Biarne, the son of Heriulf, who had settled in Greenland, was driven out of his course by strong northerly winds, and sighted certain parts of the North American Coast, which are believed to have been the Coasts of New England, Nova Scotia, and Newfoundland. His report of his adventures was treasured up in the memories of the settlers in Greenland, who fitted out an expedition of discovery to the South West, A.D. 1000, which, after first making land at Newfoundland, sailed onward to Nova Scotia and reached as far south as Rhode Island, having succeeded in rounding Cape Cod. Here, to their great surprise on landing, they found vines and grapes, and from that circumstance gave the country the name of Vinland (the land of vines); Nova Scotia they named Markland, from its woods; and Newfoundland they called Helluland (the slaty land), from its shores being covered with large slates. Other expeditions from Greenland followed in the wake of the first explorers of Vinland, and the fame of the discoveries of the Northmen soon spread throughout Europe, of which we have evidence in the "Ecclesiastical History of the North of Europe," written by Adam, Bishop of Bremen, in the eleventh century, as well as in the "Ecclesiastical History of Ordericus Vitalis," an Englishman, who became Bishop of Rouen, and makes allusion to Vinland in the twelfth century. The best evidence, however, of the truth of these discoveries was the importation from the New World of rare furs and dried grapes into Norway, and more especially of new woods, which obtained a high price in Europe, and amongst which was the moser, or mauser, a kind of bird's-eye maple, which was so highly valued, that it was thought worthy of being made into goblets for kings. Little is heard of Vinland after the twelfth century, although there are occasional notices of intercourse between Iceland and Vinland as late as the middle of the fourteenth century. But Iceland had surrendered its independence to the kings of Norway in 1261, and the adventurous spirit of the Northmen was no longer directed to the conquest of distant lands, but to the establishment of peaceful commerce with the neighbouring countries. It was one of the provisions of the oldest written

* This rock or island, which appears to have been of volcanic origin, was destroyed by a volcanic eruption, A.D. 1456, and the shoal, formed by the remains of it, is known by the name "Gombar-Skeer" or Gunnbjorn's Skerries. It is figured in Mercator's Projection of 1569 as still existing, as a rock or island. Mr. R. H. Major, F.S.A., has been the first to call attention to an ancient map made by a German named Johaan Ruysch, and published in 1507, in which a large rock or island, midway between Iceland and Greenland is figured, against which is the inscription, "*Insula hæc anno Domini 1456 fuit totaliter combusta.*"

maritime law of Iceland, which was in use in Iceland before its union with Norway, that if a ship had left the island, and during three consecutive years no tidings of it was received, and the parties interested swore to that fact, the presumption of law should be, that the vessel was lost, and if the vessel and its crew subsequently returned, no proceedings should be had against those who had succeeded meanwhile to the inheritance of the absent parties. We are not aware of any similar provision in any other ancient body of maritime law. There is no similar provision in the earliest collection of Norwegian laws, although there are Norwegian laws on shipping matters which go back to the tenth century. The Icelandic *Gragas*, for so the earliest written laws of the island were termed, probably from the grey-goose quill with which they were written, are at once a memorial of the maritime enterprise of the Icelanders, and a record of their wise legislation for the encouragement of trade with distant countries.

Whilst, however, the maritime enterprise of the Icelanders themselves was diminishing, it would appear that the navigators of the South of Europe began themselves to find their way to Iceland. Both Columbus and Cabot visited Iceland, before they decided on the course which they should take to cross the Atlantic. The Italians and the Germans are said by Northern historians to have traded with Iceland in the fifteenth century, and English vessels from Bristol found their way thither about the same time. A very curious English poem has been handed down to us by Hakluyt, who was a prebendary of Bristol Cathedral, in the first volume of his "History of English Navigations" published in 1600. The poem was composed in the reign of King Henry V., and is entitled "A Libel of English Policie, exhorting all England to Keepe the Sea, and namely, the Narrow Sea," from which it would appear that the commencement of the trade of Bristol with Iceland was then of recent date. The passage also serves to show that the mariner's compass then in use was still of a very primitive and rude kind:—

"Of Island to write is litle nede,
 Save of stock fish: yet, forsooth indeed,
 Out of Bristowe and costes many one
 Men have practised by nedle and by stoune
 Thiderwardes, within litle a while
 Within twelve yere, and without perill
 Gon and come, as men were wont of old
 Of Scarborough unto the costes cold.
 And now so fele shippes this yeere there ware,
 That much losse for unfreight they bare."

Although we have thought it due to the maritime enterprise of the early inhabitants of Iceland to assign to them the discovery of the North American continent (Vinland) in the tenth century, the Icelanders them-

selves were not aware that they had landed on a new quarter of the globe. They believed that the countries, at which they had arrived, were only a prolongation of Greenland, and, as such, a part of Europe. Several old Scandinavian maps depict Greenland as a continuation of the Russian mainland, and more than one Icelandic geographer of the thirteenth century is cited by Professor Rafn, in his work on American antiquities, published at Copenhagen in 1845, as describing the western lands discovered by the Icelanders in the tenth century—viz., Helluland (Newfoundland), Markland (Nova Scotia), and Vinland (Rhode Island), as "countries which are in that part of the world which is called Europe." We are not disposed to place implicit faith in any maps or charts which were not made public until long after they purport to have been composed, otherwise the map of the North Atlantic Ocean, drawn by Antonio Zeno, somewhere about 1400, which is the oldest known map in which any portions of North America, as distinguished from Greenland, are figured, would be very instructive; but as this map was not published before 1558, the sea which is marked upon it as constituting Greenland a peninsula, terminating about 6° N. lat., and dividing Europe, as it were, from Cathay, must be looked at with great caution. It is not probable that the brothers Zeno, who were Venetians, ever explored this sea themselves. They had established themselves in the Faroe Islands, in the latter part of the fourteenth century, and they assisted the Norman governor of those islands in asserting his independence against the kings of Norway, and during their long residence in those islands they, no doubt, obtained an extensive knowledge of the islands and countries in the North Atlantic Ocean, which were known to the Northmen. Antonio Zeno, the younger of the two brothers, depicted the knowledge which had been acquired by himself and his brother, Nicolo, in a chart, which he transmitted with other papers to his younger brother, Carlo Zeno, who had remained at Venice; and so the chart came to be preserved in the archives of the noble family of the Zeni, until it was printed and published for the first time in 1558, long after Cabot's discovery of North America. The chart, when first published, was dealt with by many critics as altogether a fabrication, devised by the Venetians to damage the credit of Columbus; but it is now generally admitted by geographers to be a genuine document, although all its details cannot be fully trusted, inasmuch as the manuscript itself had become damaged and partially decayed before its contents were committed to print.* On the

* Mr. R. H. Major, F.S.A., has recently vindicated the genuineness of the Zeno Chart, in a treatise on the voyages of the Venetian brothers Nicolo and Antonio Zeno, printed for the Hakluyt Society in 1873. Of this chart, Carlo Zeno, who published it in 1558, speaks very modestly. "Of these north parts," he says, "I

other hand, the earliest known map of the North Atlantic Ocean, prepared in Iceland, in 1570, by Sigardus Stephanus, a very learned man, who was the rector of a school in Skalhott, in Iceland, and who is said to have drawn his map after some ancient Icelandic manuscripts, represents Greenland as continuous with Helluland and Markland and the promontory of Vinland (Cape Cod). Such we take to have been the true Icelandic conception of the land in the far West at the time when Columbus visited Iceland, and which induced him to abandon the idea of a North West Passage to Cathay, and to attempt to find a direct passage amidst the islands in a more southern latitude. Columbus did not succeed in the great object of his enterprise, and it remained for Sebastian Cabot to attempt to solve the problem of the North West passage, which he failed to do, but of which he left behind him a clue, which has been followed up in subsequent centuries, and has in the present century been proved to be the true clue. We lose sight of Sebastian Cabot, as far as contemporary history is concerned, during the interval which elapsed after his return from the voyage of 1498 down to 1512, when Americo Vespucci died, having filled the office of Pilot-Major of Spain, since the death of Columbus in 1506. Immediately on the death of Vespucci, King Ferdinand of Spain decided to invite Cabot, as the most capable navigator of his age, to enter his service, and as King Henry VIII. had formed an alliance with Spain against France, and Lord Willoughby had landed with a body of English troops in Italy to co-operate with the Spanish forces against the French army of invasion, King Ferdinand made overtures through Lord Willoughby to Cabot, who accepted them, and came to Spain in the autumn of 1512. Cabot had no prospect at that time of any immediate employment under the English crown, and he remained in the employment of the Spanish crown until the death of King Ferdinand in 1516, when he returned to England to accept the leadership of an expedition fitted out by King Henry VIII. The object of this expedition, which sailed in the early part of 1517, was to find an opening to Cathay through the sea at the back of Newfoundland; and it was in the course of this expedition, and not in the earlier expedition of 1498, that Cabot, in our opinion, succeeded in penetrating as far as $67\frac{1}{2}^{\circ}$ N. lat., in what he believed to be a strait, and which was probably a continuation of Hudson Strait—so named since the last voyage of Hudson in 1610. Cabot had perfect confidence that he was on the track of the true passage to Cathay,

have thought good to draw a copy of the sailing chart (*carta da navigare*) which I find that I have still amongst our family antiquities, and although it is rotten with age I have succeeded with it tolerably well; and to those who take pleasure in such things it will serve to throw light on the comprehension of that which without it, could not be so easily understood."

when he was forced to turn back by the refusal of Sir Thomas Pert, his colleague in the command of the expedition, to proceed any further. Sir Thomas Pert appears to have been a Vice-Admiral of England, and was probably reluctant to risk the loss of the King's ships in the ice, so that his refusal, which Cabot's friends have attributed to his "faint heart," may have been attributable to his undue preference of the King's pecuniary interests to the glory of a new discovery. It is said also that the crews mutinied, and would proceed no further. There are writers who have dealt with this voyage of Cabot, in 1517, as a fiction, and Dr. J. G. Kohl, of Bremen, in his recent history of the "Discovery of the East Coast of North America," has marshalled very ably the various arguments which may be advanced against it; whilst Mr. Biddle of the United States, in his memoir of Cabot, the second edition of which was published in 1882, has supported the opposite view of the question. The main consideration, on which Dr. Kohl lays stress, is the improbability of Cabot having quitted the service of Spain on the death of King Ferdinand, in 1516; as he was advanced to a high post in the service of his successor, the Emperor Charles V., in 1518; but there is, on the other side, a positive declaration on the part of Richard Eden, the intimate friend of Cabot, printed and published in 1553, during the lifetime of Cabot, in which he states that "our Sovereign lord, of noble memory, King Henry VIII., about the same (eighth) yere of his raigne furnished and set forth certen shippes under the guidance of Sebastian Cabot, still living, and one Sir Thomas Pert, whose saynt heart was the cause that that viage toke none effect." There is also a notice of a voyage made in the reign of King Henry VIII., under circumstances identical with those just described, preserved in a poem, which was probably written in 1518, as it speaks of the Great Ocean beyond "Iselonde"—

So great it is, that never man
Coude tell it, sith the world began,
Till now within this XX. yere,
Westwarde he founde new landes
That we never harde tell of before this
By wrytynge nor other meany.

Twenty years, the interval named in the above lines as having elapsed since the discovery of new lands, would carry us back to 1498, in which year Sebastian Cabot discovered the main land of North America. The poem, which is styled the "Interlude of the Four Elements," and was written by Rastel, brother-in-law to Sir Thomas More, goes on to lament that the false treason of the "kaytiffe" mariners caused the expedition to fail, and lost to the realm and to the King an extension of his dominions :—

Thereunto so farre a grounde
Which the noble Kynge of late memory,
The most wyse Prince the VII. Henry,
Caused furst for to be founde.

There is no record of any other expedition about this time to the distant west, to which the language of the poet so well applies, as to the voyage of Cabot in 1517, as described by Richard Eden, his intimate friend. Further, there is a letter addressed by Robert Thorne, the merchant prince of Bristol, also an intimate friend of Cabot's, to King Henry VIII. in 1527, in which, after stating that there were three routes to be taken to get to Cathay, he indicates the north-west route in these terms:—"And if they will take their course after they be past the pole towards the West, they shall go on the back side of the new found land which of late was discovered by your Grace's servants, until they come to the back side of the Indies Oriental." It would seem to be a strained construction of this letter to suppose that the writer was referring to the land discovered thirty years before by the servants of the King's father, Henry VII., and not to the discovery of a strait at the back of the new found land made within a more recent period by the servants of the King, to whom the letter was addressed. From 1518 to 1548 Sebastian Cabot continued in the service of the Emperor Charles V. He was named Pilot-Major of Spain in 1518, although he did not enter upon the duties of the office until the Emperor visited England, and took him back with him in 1520. It is said that Cardinal Wolsey offered him in 1519 the leadership of an expedition, which ultimately sailed from England in 1527, but Cabot remained in the service of the Emperor until the accession of Edward VI., when he came to England and settled in his native city of Bristol. The death of Peter Martyr d'Anghiera had deprived him of an influential friend at the Spanish Court, where the counsels of Pizarro were in the ascendant, but there are good grounds for believing that Cabot was mainly influenced in his decision to quit Spain by religious feeling, and that he was desirous to return to a country where he would be at liberty to read the Word of God under the protection of the law. The Emperor Charles V. was unwilling to lose his services, and demanded from the King of England his extradition, which the King's Council refused, on the ground that he was a British subject, and needed not to go to Spain, unless he was so minded of his own free will. The Emperor thereupon struck off his pension, and Edward VI. assigned him soon afterwards an annual payment of 250 marks. Whether the office of Chief Pilot was created for him at this time, as Hakluyt states, is open to some doubt, as from a MS. preserved in the Lansdowne collection (No. 116, art. 8) that office seems to have been instituted at a later period in favour of Stephen Burrough, but there can be no doubt that

the important duties, which Cabot was called upon to discharge, led to the creation of that office. We find Cabot publicly explaining to King Edward VI. the phenomena of the variation of the magnetic needle, to which he is said to have first paid systematic attention, and to have framed thereupon a theory as to the position of the magnetic pole, which, although not quite coincident with the fact ascertained by Sir John Ross in 1831, was an approximation to it. The great work, however, which Sebastian Cabot was destined to achieve in his old age still awaited his direction. The London merchants had at last determined to combat the monopoly of the merchants of the Steelyard, who had obtained the command of England's commerce, and consequently controlled the price of English commodities, and they decided to place themselves under the guidance of Sebastian Cabot, with a view to open a way to new markets in countries to which a direct access was hitherto unknown to them. The Company of Merchant Adventurers was thereupon incorporated (14th December, 1551), of which Sebastian Cabot was appointed Governor for life. King Edward VI. took a warm interest in the success of this Company, as is known from the entries in his private journal, and at last an expedition of three ships was fitted out under the chief command of Sir Hugh Willoughby, the second in command with the title of Pilot-Major being Richard Chancellor, the intimate friend of Cabot. A book of instructions for the intended voyage was framed by Cabot himself, which is still preserved, and which bears witness of his comprehensive knowledge and his true Christian principles. It was intended that the King himself should wish God's speed to the expedition as it passed by his palace at Greenwich. The Court and the Privy Council were there (20th May, 1553), and the nation itself was well represented, but the good King himself was absent from illness, and did not live to hear that Richard Chancellor's ship, having parted from her consorts, had arrived at Archangel, and that Chancellor himself had succeeded in finding his way overland to Moscow, where he obtained from the Czar a charter, under which the Great Russia Company, with Sebastian Cabot as its Governor, opened out a new and prosperous channel of trade to English enterprise. The frozen-up ships were discovered long afterwards, when the journal of the brave Sir Hugh Willoughby was found, which had been carefully noted up to January, 1554. Richard Chancellor himself perished on his passage homewards, but Stephen Burrough, his sailing master, survived, and Cabot lived to superintend another voyage, in which Burrough was again despatched to the North in 1556. At last a "black day" came upon Cabot. Philip II., the Spanish husband of Queen Mary, arrived in London on the 20th May, 1557, and Cabot was called upon to resign, on the 27th May, 1557, the pension or stipend of his office, which had been granted to him for life by King Edward VI. There may be

some explanation hereafter forthcoming from some unknown archives, in palliation of this hasty revocation of King Edward's grant, but it has been hitherto attributed to a spirit of vengeance against Cabot for having quitted the service of Spain, coupled with the same niggardly spirit which had induced Philip II. to withhold from his father, Charles V., the small pension, which he had reserved for himself on his abdication of a mighty Empire. The stipend of 240 marks was henceforth to be shared between Sebastian Cabot and William Worthington, of whom little is known except that he was a favourite of the Crown. The date equally as the place of Sebastian Cabot's death is unknown: all that we know is that his faithful friend Richard Eden was at his bedside, and that the dying seaman was in imagination on his beloved ocean, when his spirit winged its flight to another world. It is presumed from Eden having been with Cabot at his death, that Cabot died somewhere in London, but no record can be discovered of his place of interment. Colonel Joseph L. Chester, who has recently published the Registers of the Collegiate Church or Abbey of St. Peter's, Westminster, and has probably a larger acquaintance with the Parochial Register Books of London than any other living person, has failed to discover any traces of the name of Cabot, except in the Register Books of St. Bartholomew by the Royal Exchange, in which the name of Cabot occurs four times between 1558 and 1562, one of the entries being that of Elizabeth Cabot married in 1560 to Robert Saddler. It is possible that this Elizabeth Cabot may have been a daughter of Sebastian Cabot, for in the will of the Rev. William Mychell, which was proved in the Bishop of London's Registry on the 31st January, 1516-17, Colonel Chester has noted a small legacy left by the testator to his godchild, Elizabeth, daughter of Sebastian Caboto. But where are we to find the record of England's gratitude to the greatest of her navigators? There is no monument of him to be found in her halls; there is no portrait of him to be found in her galleries. There was a portrait of Sebastian Cabot, according to Purchas (vol. iv., p. 1812), which he had seen hung up in the King's private gallery at Whitehall, on which he describes an inscription thus:—"Effigies Seb. Caboti Angli, filii Joannis Caboti Veneti, militis aurati, &c." The work of Purchas was published in 1625, towards the end of the reign of James I. We have no further record of the portrait, and there are good grounds for believing that it was not in the gallery at Whitehall in the reign of Charles II. A portrait, however, was discovered in a gallery in Scotland, in 1792, in the upper corner of which, on the left hand, was the inscription:—"Effigies Seb. Caboti Angli, filii Johannis Caboti Veneti, Militis Aurati, primi inventoris Terræ Novæ sub Henrico VII., Angliæ Rege." This portrait was acquired by Mr. Charles Joseph Harford, of Bristol, and an excellent

engraving of it, executed by S. Rawle, is prefixed to "Sayer's Memoirs of Bristol." The portrait represents the great navigator with a pair of compasses in his hand, measuring the latitude on a globe on the left hand side of the picture, and wearing round his neck a large gold chain, believed to be an official decoration of the Governor of the Merchant Adventurers. If the latter supposition be correct, the picture must have been painted some time after 1551, and was not the work of Holbein, who died in 1543. It was believed, however, to be "a Holbein," and as such was sold by the executors of Mr. Harford for five hundred guineas to Mr. Biddle, of the United States; and so the only contemporaneous record of the personality of the great navigator seemed destined to find a permanent home in the land of his discovery. But by a strange coincidence the land of his discovery proved to be more inhospitable than the land of his birth, as this very portrait of Cabot was destroyed by fire in 1845, when the mansion of Mr. Biddle at Pittsburgh was burnt down. All that remains now is for some rising artist of talent to immortalise his name by rendering in oil the traits of the great navigator, which the skill of the engraver has preserved, and to present his work to the Historical Portrait Gallery of the nation, which is at present scantily furnished with portraits of our great navigators. There is, however, another gap to be filled up. The maps, charts, and discoveries of Sebastian Cabot, written with his own hand, were in the custody of William Worthington at Cabot's death, and they were in his possession when Hakluyt consulted one of the charts in 1582. They have since disappeared, and there are strong grounds for believing, as no traces of them have been discovered in any English Archives, that they may have found their way into some of the Secret Archives of the Spanish Indies, soon after the publication of Hakluyt's works, when English enterprise was scattering dismay amongst the settlements of Spain on the Western shores of the Atlantic. It would be for the glory of Spain, whose sovereigns were the intelligent protectors of Cabot, and for whom Cabot did a great work in the exploration of the Rio de la Plata in 1526, equally as of England, that Cabot's papers should now be made public, and that mankind should be able to appreciate the full extent of the great services which Columbus on the one hand, and Cabot on the other, successively accomplished in the common interest of the human race.

TRAVERS TWISS.

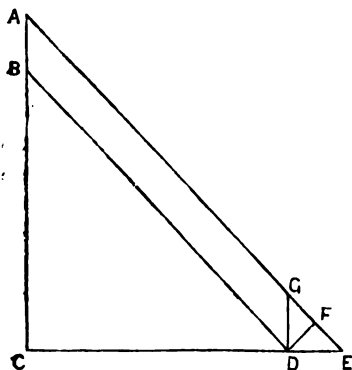
RAPER'S NAVIGATION.—III.

ERRORS OF THE HOUR ANGLE.

615. Foot Note.

These small changes are investigated in the ordinary theoretical works on Nautical Astronomy directly from the Spherical Triangle A P Z (p. 144 Raper), but perhaps the following may not be considered altogether unsatisfactory.

On Mercator's projection small distances are to the real distances on the Sphere as the Secant of the Latitude is to unity; hence small distances are equal to real distances multiplied by the Secant of the Latitude. At any instant a line of Equal Altitude on the Chart or what is usually termed a *line of position* is at right angles to the bearing of the object, consequently the angle this line makes with a Parallel of Latitude represents the Azimuth, and a small change of Altitude will be in a direction perpendicular to this line. Also a change of Latitude will be represented by a small portion of a Meridian, and a change of Hour Angle by a small portion of a Parallel of Latitude.



Thus if A C represent a Meridian, C E a Parallel of Latitude, A E the Line of Position, then the angle E is the Azimuth. Let B D be parallel to A E, then A B will represent a small change in the Latitude, and D E the corresponding change in the Hour Angle. Draw D F perpendicular to A E, then D F will be a small change in the Altitude; also draw D G parallel to A C, then A B = D G.

In the triangle D E G, $D E = D G \cdot \cot E$

or Change in Hour Angle = Change in Lat. Sec Lat. Cot Az

or Sin Change in Hour Angle = Sin Change in Lat. Sec Lat. Cot Az

Hence the rule.—Add together the Log Cot of the Azimuth, the Log Sec of the Latitude and the Log Sin of the Error of Lat; the sum (rejecting tens) is the Log Sin of the Error required.

Note.—There is a misprint in Raper. For Log Sec of the Alt read as above Log Sec of the Lat.

In the triangle D E F, $D E = D F \cdot \operatorname{cosec} E$

or Change in Hour Angle = Change in Alt. Sec Lat. Cosec Az

or Sin Change in Hour Angle = Sin Change in Alt. Sec Lat. Cosec Az

Hence the rule.—Add together the Log Sin of the Change of Altitude, the Log Cosec of the Azimuth and the Log Sec of the Latitude; the sum (rejecting tens) is the Log Sin of the Error required.

616. TO FIND THE HOUR ANGLE, THE AZIMUTH BEING GIVEN.

See the figure on p. 144 Raper.

Let A be the Object, Z the observer's Zenith and P the elevated Pole, then ZP is the Colat, ZA the Zenith Dist, PA the Polar Dist, the angle Z the Azimuth and the angle P the Hour Angle.

Let Lat= l Colat= l_1 Decl= d Polar Dist= p

In the Spherical triangle APZ,

$$\begin{aligned}\frac{\sin A}{\sin Z} &= \frac{\sin ZP}{\sin AP} \\ \sin A &= \sin Z \cdot \sin ZP \cdot \text{Cosec } AP \\ &= \sin Z \cdot \cos l \cdot \sec d\end{aligned}$$

By Napier's Analogies

$$\begin{aligned}\tan \frac{1}{2}(A+Z) &= \frac{\cos \frac{1}{2}(AP \sim ZP)}{\cos \frac{1}{2}(AP + ZP)} \cdot \cot \frac{1}{2}P \\ &= \frac{\cos \frac{1}{2}(p \sim l_1)}{\cos \frac{1}{2}(p + l_1)} \cdot \cot \frac{1}{2}P\end{aligned}$$

$$\begin{aligned}\cot \frac{1}{2}P &= \tan \frac{1}{2}(A+Z) \cdot \frac{\cos \frac{1}{2}(p + l_1)}{\cos \frac{1}{2}(p \sim l_1)} \\ &= \tan \frac{1}{2}(A+Z) \cdot \cos \frac{1}{2}(p + l_1) \cdot \sec \frac{1}{2}(p \sim l_1)\end{aligned}$$

Hence the rule.—Add together the Log Sin of the Azimuth ($\sin Z$) the Log Cos of the Lat ($\cos l$) and the Log Sec of the Decl ($\sec d$); the sum (rejecting tens) is the Log Sin of the angle A ($\sin A$).

Under A put the Azimuth (Z) reckoned from the elevated Pole and take half the sum $\{\frac{1}{2}(A+Z)\}$.

Take half the sum of the Polar Dist and Colat $\{\frac{1}{2}(p+l_1)\}$ and half the diff $\{\frac{1}{2}(p \sim l_1)\}$.

Add together the Log Tan of the half sum of A and the Azimuth $\{\tan \frac{1}{2}(A+Z)\}$, the Log Cos of the half sum of Polar Dist and Colat $\{\cos \frac{1}{2}(p+l_1)\}$ and the Log Sec of the half diff $\{\sec \frac{1}{2}(p \sim l_1)\}$; the sum (rejecting tens) is the Log Cot of an arc ($\cot \frac{1}{2}P$).

When each half sum is less or greater than 90° , twice this arc ($\frac{1}{2}P$) is the Hour Angle required (because the quantities have the same sign and consequently $\cot \frac{1}{2}P$ is positive), but if one only of the half sums exceeds 90° , twice the supplement of the arc ($180^\circ - \frac{1}{2}P$) is the Hour Angle (because the quantities have contrary signs and consequently $\cot \frac{1}{2}P$ is negative).

Note.—The last case cannot happen in practice, because $\frac{1}{2}P$ never exceeds 90° .

617. TO FIND THE HOUR ANGLE, THE ALTITUDE AND AZIMUTH BEING GIVEN.

The same notation as in 616. Also let $\text{Alt} = a$

In the Spherical triangle APZ ,

$$\frac{\sin P}{\sin Z} = \frac{\sin A Z}{\sin A P}$$

$$\sin P = \sin Z. \sin A Z. \text{Cosec } A P \\ = \sin Z. \cos a. \sec d$$

Hence the rule.—Add together the Log Sin of the Azimuth ($\sin Z$) the Log Cos of the Alt ($\cos a$), and the Log Sec of the Decl ($\sec d$); the sum (rejecting tens) is the Log Sin of the Hour Angle ($\sin P$).

Note.—There is an ambiguity in this rule, as the formula does not show when P is acute and when obtuse. If the Lat and Decl are of opposite names, P must be less than 6 hours; but if they are of the same name, P may be more than 6 hours. Should there be any uncertainty as to the magnitude of P , it would be better to proceed by the ordinary rule (614).

622.—TO FIND THE HOUR ANGLE NEAR THE MERIDIAN, BY THE OBSERVED CHANGE OF ALTITUDE.

The table in 622 is for the purpose of correcting small angles, so that the Sine of the number of seconds in the angle increased by the quantity in the table, may give the same as the number of seconds in the arc multiplied by the Sine of $1''$.

Ex. for 15° .

$$15^\circ = 54000'' \text{ Log } 4.732394$$

$$1'' \text{ Log Sin } 4.685575$$

$$15^\circ. 10'. 87'' \text{ Log Sin } 9.417969$$

Hence the Cor for 15° is $10'. 87''$

The first part of the table is the same Cor expressed in Time.

Thus if small quantities are used in which the Sine and Arc are interchanged, we can increase the quantity by the Cor from the table and take out the Sine, instead of using the number of seconds multiplied by $\sin 1''$. In the following investigation there is an example. $\sin (P_1 - P_2)$ is put for $2 \sin \frac{1}{2} (P_1 - P_2)$, because when $(P_1 - P_2)$ is small $\sin \frac{1}{2} (P_1 - P_2) = \frac{1}{2} (P_1 - P_2) \sin 1''$, therefore $2 \sin \frac{1}{2} (P_1 - P_2) = (P_1 - P_2) \sin 1''$ which by the above is $\sin (P_1 - P_2 + \text{Cor})$.

See figure p. 144 Raper.

Keeping the previous notation and also putting P_1 for the Hour Angle

corresponding to the first Altitude a_1 , P_1 for the Hour Angle corresponding to the second Altitude a_2 , we have

$$\cos P_1 = \frac{\sin a_1 - \sin l \cdot \sin d}{\cos l \cdot \cos d}, \quad \cos P_2 = \frac{\sin a_2 - \sin l \cdot \sin d}{\cos l \cdot \cos d}$$

$$\cos P_1 - \cos P_2 = \frac{\sin a_1 - \sin a_2}{\cos l \cdot \cos d}$$

$$2 \sin \frac{1}{2} (P_1 + P_2) \cdot \sin \frac{1}{2} (P_1 - P_2) = \frac{2 \cos \frac{1}{2} (a_1 + a_2) \cdot \sin \frac{1}{2} (a_1 - a_2)}{\cos l \cdot \cos d}$$

But $2 \sin \frac{1}{2} (P_1 - P_2) = \sin (P_1 - P_2)$ and $2 \sin \frac{1}{2} (a_1 - a_2) = \sin (a_1 - a_2)$ if $(P_1 - P_2)$ and $(a_1 - a_2)$ be corrected by the given table.

$$\text{Therefore } \sin \frac{1}{2} (P_1 - P_2) \cdot \sin (P_1 - P_2) = \frac{\cos \frac{1}{2} (a_1 + a_2) \cdot \sin (a_1 - a_2)}{\cos l \cdot \cos d}$$

$$\sin \frac{1}{2} (P_1 + P_2) = \operatorname{Cosec} (P_1 - P_2) \cdot \cos \frac{1}{2} (a_1 + a_2) \cdot \sin (a_1 - a_2) \cdot \sec l \cdot \sec d$$

Hence the rule.—Add together the Log Sin of the diff Alts (corrected) $\{\sin (a_1 - a_2)\}$, the Log Cosec of the Interval (corrected) $\{\operatorname{Cosec} (P_1 - P_2)\}$, the Log Sec of the Decl (Sec d), the Log Cos of the mean of the two Alts $\{\cos \frac{1}{2} (a_1 + a_2)\}$, and the Log Sec of the Lat (Sec l); the sum (rejecting tens) is the Log Sin of the Hour Angle at the Middle Interval nearly $\{\sin \frac{1}{2} (P_1 - P_2)\}$.

Also $P_1 = \frac{1}{2} (P_1 + P_2) + \frac{1}{2} (P_1 - P_2)$ and $P_2 = \frac{1}{2} (P_1 + P_2) - \frac{1}{2} (P_1 - P_2)$

Hence to find the Hour Angle for the Altitude nearest the Meridian (P_2), subtract the half interval $\{\frac{1}{2} (P_1 - P_2)\}$ from this Hour Angle $\{\frac{1}{2} (P_1 + P_2)\}$. To find the Hour Angle for the Altitude furthest from the Meridian (P_1), add half the Interval $\{\frac{1}{2} (P_1 - P_2)\}$ to the Hour Angle found $\{\frac{1}{2} (P_1 + P_2)\}$.

688. TO FIND THE CHANGE IN THE TIME OF APPARENT RISING OR SETTING DUE TO THE HORIZONTAL REFRACTION AND THE HEIGHT OF THE SPECTATOR.

If e be the change of Hour Angle corresponding to a change of Altitude c , then by 615 foot note and the triangle APZ p 144 Raper

$$\sin e = \sin c \cdot \operatorname{Cosec} Z \cdot \sec l$$

$$\frac{\sin P \cdot \sin AZ}{\sin Z} = \frac{\sin A \cdot Z}{\sin A \cdot P} = \frac{\cos a}{\cos d}$$

$$\operatorname{Cosec} Z = \operatorname{Cosec} P \cdot \cos a \cdot \sec d$$

$$= \operatorname{Cosec} P \cdot \sec d. \quad (\text{At apparent rising and setting } \cos a = 1 \text{ nly.})$$

$$\text{Therefore } \sin e = \sin c \cdot \operatorname{Cosec} P \cdot \sec d \cdot \sec l$$

Hence the rule.—Add together the Log Secants of the Lat and Decl (Sec l, Sec d), the Log Cosec of the Hour Angle at Rising or Setting (Cosec P), and the Log Sin of $34' + \text{Depr for the Height of the Eye}$ (Sin c) the sum (rejecting tens) is the Log Sin of the portion of time required (Sin e).

668. TO FIND THE ALTITUDE, THE AZIMUTH BEING GIVEN.

Figure and notation as before.

$$\frac{\sin A}{\sin Z} = \frac{\sin P Z}{\sin P A} = \frac{\cos l}{\cos d}$$

$$\sin A = \sin Z \cdot \cos l \cdot \sec d$$

$$\text{Also } \tan \frac{1}{2} (p + l_1) = \frac{\cos \frac{1}{2} (A \sim Z)}{\cos \frac{1}{2} (A + Z)} \cdot \tan \frac{1}{2} A Z$$

$$\tan \frac{1}{2} A Z = \tan \frac{1}{2} (p + l_1) \cdot \cos \frac{1}{2} (A + Z) \cdot \sec \frac{1}{2} (A \sim Z)$$

Hence the rule.—Add together the Log Sin of the Azimuth ($\sin Z$), the Log Cos of the Lat ($\cos l$), and the Log Sec of the Decl ($\sec d$); the sum (rejecting tens) is the Log Sine of an angle A ($\sin A$).

Under A put the Azimuth (Z), reckoned from the elevated Pole, take half the sum $\{ \frac{1}{2} (A + Z) \}$ and half the diff $\{ \frac{1}{2} (A \sim Z) \}$.

Take half the sum of the Polar Dist and Colat $\{ \frac{1}{2} (p + l_1) \}$.

Add together the Log Tan of this half sum $\{ \tan \frac{1}{2} (p + l_1) \}$, the Log Cos of the half sum of the Azimuth and A $\{ \cos \frac{1}{2} (A + Z) \}$, and the Log Sec of their half diff $\{ \sec \frac{1}{2} (A \sim Z) \}$; the sum (rejecting tens) is the Log Tan of half the Zenith Dist ($\tan \frac{1}{2} A Z$).

W. H. BOLT.

Nautical Academy, 10, King Street, Tower Hill.

CRIMPING AT GREENOCK.—It would appear that active measures are now being taken by the authorities at Greenock, under, we presume, the direction of the Board of Trade, to suppress crimping at that port. The following case was recently reported in a Glasgow newspaper. George Gardiner, an outfitter's runner, was charged before the Justices of the Peace at Greenock, in March last, with having gone on board of the ship *Arabia* (Captain Brabazon), on its arrival at the Tail of the Band from Rangoon, without having obtained permission from the master to do so. The accused failed to appear, but the officer of the Court deposed to having served a copy of the complaint upon him on the previous Tuesday, when he found Gardiner engaged in removing the furniture from his house. Mr. Alexander Blair, who prosecuted on behalf of the Board of Trade, said that persons guilty of such charges had now got into the habit of leaving the town as soon as they were discovered, and they did not return until the vessel had sailed, when, of course, the offence could not be proved. The magistrate then stated that the penalty would be one of £20, with £3 16s. of expenses. We are informed that the sheriff's officer afterwards succeeded in apprehending Gardiner, and that the latter was conveyed to Paisley, in the county prison of which town he now lies, and will be detained there until the penalty inflicted has been paid, or until the Board of Trade consent to his being released.

THE CROZETS.



UR number for July contained a letter addressed by the Admiralty to the Secretary of Lloyd's Committee, relative to a request preferred by that body, that in view of the casualties which have occurred on the Crozet Islands within a comparatively short period to three first-class ships trading between Great Britain and Australia, one of Her Majesty's ships should from time to time visit these islands as lying in the ordinary track of vessels making the Australian voyage, or that one of the Australian Squadron should be despatched on that service; and we also placed before our readers a somewhat lengthened correspondence between Captain Nash, already known to these columns, and the *Sydney Herald*, on the subject of the route from the Cape to Australia. We need hardly say that although the question of Australian routes has been from time to time discussed in these pages, it has been invested with a special and painful interest in consequence of the loss of the passenger ship *Strathmore*, and the details of that casualty which have been ascertained. The reply of Admiral Hall to Lloyd's Committee was what might have been anticipated, and all things considered it is not unreasonable. Their Lordships, with every wish to meet the request of the Committee, cannot give directions to one of Her Majesty's ships on the Australian station to search the outlying islands, as these lie beyond the limits of the Australian command. Orders will be given for any vessel proceeding from the Cape of Good Hope to Australia when possible to sight the Crozet Islands near enough to examine them. "In making this communication," writes Admiral Hall, "my Lords desire me to observe that it has come to their knowledge that ships, in making the passage from this country to Australia, appear to incur very great risk by going too far south and making the run among icebergs and floating ice, and if this is the general practice, their Lordships cannot feel surprised at several vessels being now missing." The group called the Crozets derive their name from M. Crozet, the commander of the French ship *Ajax*, who discovered them in 1773, and are situated between lat. 46° and 46° 37' S., and long. 50° 20' and 52° 20' E. They are five in number—namely, East Island, Possession Island, Panquin Island, Hog Island, and the Twelve Apostles, where the survivors of the *Strathmore* were landed. Between the Penguin and Hog Islands is a reef called the Hermione Breakers, so named by M. Cecille of the French Navy, who in 1837 to 1839 commanded the French ship of that name, and from whose published report of an examination of these islands the most reliable, if not the latest, details of their configuration and the outlying dangers may be collected.

M. Cœlle commenced his investigations in the N.W. with the Apostles Islands. He then appears to have visited Hog Island, so called from the number of hogs which have sprung from some animals of the species left there by Captain Distance in 1824, and which appear to have multiplied exceedingly. M. Cœlle then proceeded to Possession Island, and finally to East Island. This navigator's description of the outlying dangers of these islands is perhaps the most valuable part of his report. "Leaving the south end of Possession Island at 4 p.m., we steered close along the southern coast of East Island. Though not more than three or four miles in diameter, its loftiest pinnacles attain a height of at least 4,000 feet, and the precipices of its shores in some places rise several hundred feet perpendicularly from the sea. Nearly every cape has its detached rock extending off it from half-a-mile to two miles; one of these near Bull Bay lies still further off, and being considerably inclined in one point of view, resembles a ship under press of sail: hence its appellation, Ship Rock. Another, near the south-eastern extreme, is called Church Rock, from another fancied similarity; but the most remarkable of them all is the perforated rock to the westward of the north cape of Possession Island, through which a small vessel might sail." As these islands lie in what may be termed the modern track of vessels bound to the Australian Colonies, a description of this region of desolation is of less interest than the examination of the routes which, as it would seem by a mistaken navigation, have brought vessels within the compass of these dangers, and even precipitated ships upon them. We fear that for the adoption of the extreme southerly route for Australia after passing the meridian of Greenwich, the late Captain Maury must be held in great measure if not wholly responsible. "The winds most favourable for the prosecution of the voyage," wrote that navigator in his "Sailing Directory," "are to be found southward of lat. 50° S. Many vessels acting on this advice have shaped a course from the meridian of Greenwich, which have taken them to 52° S., or a degree to the southward of Kerguelen's Land, and some few have adventured as far south as lat. 56° 37'. We need not of course say that the severity of the weather in those latitudes, and the liability to encounter icebergs, far more than compensated for the chance of falling in with steady easterly winds. These are vicissitudes and dangers of navigation which no commander, unless bound on a special service—certainly no commander of an emigrant ship would be justified in incurring—and if he did so, and that the result was disaster and suffering, he would incur a grave responsibility. Admiral Hall, in the letter above referred to, adopts the advice contained in the sixth edition of the "Australia Directory," vol. 1, p. 1, that, after rounding the Cape, vessels bound to the South Coast of Australia should run down their longitude on or about the parallel of 39° S., where

there are constant westerly winds, and seldom too strong for carrying sail. "In a higher latitude," adds the same authority, "the weather is frequently more boisterous and stormy, and sudden changes of wind, with squally weather, are almost constantly to be expected, especially in the winter season; and after passing the Islands of St. Paul and Amsterdam, islands of ice have also been encountered in these regions, as was almost fatally proved by H.M.S. *Guardian* striking against one in lat. 46° , or 47° S., and nearly foundering, in the beginning of summer." In adopting this advice and recommending it to navigators, the Admiralty are quite consistent. They have long advocated running down easting on the parallel of 39° south. On that parallel the distance from the meridian of Greenwich to Cape Otway in Australia is found to be 6,694 miles. From the same meridian, and nearly the same parallel, the distance to the same point, by what is known as the composite track with a maximum lat. of 45° S., the distance was computed at 6,308 miles, with a maximum lat. of 48° S. at 6,161 miles, and of 51° S. of 6,000 miles. These results show no doubt a considerable saving of distance, which would mean also a saving of time in the composite courses from the meridian of Greenwich, and reaching to high southern latitudes compared with the running down on the 39th parallel; but those courses are accompanied by risks from which that recommended by the Admiralty is free, not the least formidable of those risks being those connected with the Crozets, their outlying dangers, and the thick weather in which they are so constantly enveloped. It has been suggested that a safe mean might be hit upon by taking a departure from the meridian of Greenwich in $38\frac{1}{2}$ or 39° S., and pursuing a composite route with 45° S. as a maximum latitude. This course made good would clear the Crozets to the northwards by a degree, no more, as it seems to us, than a prudent navigator should allow, considering the character of these islands and of their surroundings, and that they stretch over two degrees of longitude. We believe that the course recommended by the Admiralty—that of running down the whole of the longitude from the Cape to Australia—is the safest and wisest, though there may be some slight loss of time. The difference of a few degrees of latitude south of 39° may bring a ship into direct conflict with all the savage incidents of really antarctic navigation. There is nothing to be gained by risking the dangers of floating ice, sleet, and snowstorms, with the concomitant suffering, except a brief saving of time, which in a passage to the antipodes cannot be of much moment even in these days of high pressure and despatch. Better to lose a few days in a voyage through a temperate region and with favourable weather than to tempt the powers of nature in their destructive might and court destruction in its most appalling form. We shall be happy if any words of ours should induce masters in command,

more particularly of Australian emigrant ships, to see the wisdom of avoiding those extremes of navigation on the Australian route, which have recently proved fatal, it is to be feared, to three valuable ships freighted with still more valuable lives, and that their employers will be content to sacrifice a brief space of time on the voyage in order the better to ensure the safety of the good ship and all that she contains.

THE PORT OF GENOA.

AT the time when Venice, securely seated amidst its Lagunes, owned the sovereignty of the Adriatic, the republic of Genoa which had fortunately escaped the pillage of the barbarians from beyond the Alps, held a constant intercourse with Constantinople and with Syria, from whence the citizens obtained the rich products which they afterwards dispersed throughout Lombardy. The mariners of those days found it necessary to defend with their swords the merchandise conveyed from one extremity to the other of the Mediterranean; and were thus brought in contact with the Saracens. And the western world having taken up the dispute about the Holy Sepulchre, the zeal of the Crusaders was vigorously seconded by the three maritime cities of Venice, Pisa, and Genoa. Sismondi relates that, when Henry VII. arrived with his little army at Genoa, on the 21st October, 1311, that powerful republic maintained at St. Jean d'Arc, at Pera, opposite to Constantinople, and at Caffa in the Black Sea, military and mercantile colonies, which made themselves respected for their valour, at the same time that they carried on the richest commerce of the Mediterranean. Several islands in the Archipelago, amongst others that of Chios, had passed in sovereignty to Genoese families. The palaces of Genoa, already called the "superb," were the admiration of travellers. Its sanguinary rivalry with Pisa had terminated by securing the empire of the Tyrrhene Sea; and from that time Genoa had no other rival than Venice. An accidental rencounter of the fleets of these two cities in the sea of Cyprus lighted up between them, in 1298, a terrible war, which for seven years stained the Mediterranean with blood, and consumed immense wealth. In 1298, the Genoese admiral, Lamba Doria, meeting the Venetian commander, Andrea Dandolo, at Corzuola, or Corcyra the Black, at the extremity of the Adriatic Gulf, burnt sixty-six of his galleys and took eighteen, which he brought into the port of Genoa, with 7,000 prisoners, suffering only twelve vessels to escape. The humbled Venetians in the next year

asked and obtained peace. The Genoese, vanquishers in turn of the Pisans and Venetians, passed for the bravest, the most enterprising, and the most fortunate mariners of all Italy.

The district of Genoa at present includes the minor ports of Spezia, Savona, Oneglia, and Porto Maurizio, the port of Genoa alone having any considerable trade with England. From the series of reports made by Consul Brown we learn that English trade with Genoa, though never actually so large as now, was relatively greater forty, or even twenty years ago. Little was then done, except with England, France, and the Levant, and of these the English trade was far the most important, and was then carried on exclusively in our own bottoms. In those days there was no such thing as a direct trade with the United States; the traffic with the Rio della Plata was in its infancy, and guano came from Chili under the English or American flag. The imports, therefore, of most articles from "beyond seas" passed through England, or were sent thither by English firms and in English vessels.

All this is completely changed now; the enormous and constantly increasing traffic between Genoa and the Genoese colony established in the Argentine Republic has thrown into Genoese hands the direct trade, not only with that State, but with the whole of South America. Cotton and petroleum is bought in the United States by telegraph, and is imported direct, and more and more each year in Italian vessels, while in our own coal trade we are steadily being cut out by our enterprising and economical Genoese rivals. It is not needful to look far to find the reason for these changes: Italy then a child in arms is now a grown lad, and is rapidly becoming a strong man. Italy was then divided into six different States, separated by frontiers and Custom-houses, and moreover, kept apart from one another by petty local jealousies and differences of dialect, all of which were carefully fostered by their foreign rulers; whereas she is now one united country, and the rivalry that still exists between the towns serves only to stimulate each to contribute to the general prosperity. At the head of all regeneration and progress were the so-called "Old States," and taking the lead in commercial, and of course more especially maritime matters, was Genoa its Riviera. The latter ought to be included, for it is not by any means to Genoa alone that the great advance made in all material prosperity is due. The whole way from Nice to Spezia, Consul Brown remarks, the rule is hard work, keen intelligence, and strict frugality; and there is hardly a village along the coast that cannot produce several among its inhabitants who, starting from the most humble origin, have worked their way up, if not to be millionaires, at any rate to be in affluent circumstances, and the fact is to be noted that not one of these men, though now settled down upon land bought with the result of hard work, ever thinks of

giving himself up to a lazy existence, but continues his work steadily; only, instead of having to rough it, he lives comfortably, but always economically, at home, while he uses his capital to start others in the path he has followed so successfully, and which he makes surer and quicker to them both by his experience and his command of money.

This great extension of trade has had among other results that of effectually emancipating the Genoese merchants from the sort of tutelage they were under for some time after the formation of the Sardinian kingdom to the English merchants, so that there are comparatively few resident English firms, although the business done with England has so enormously increased. The trade with England has always been, and is essentially, an import trade; the exports never reaching an eighth of the value of the imports. Formerly Genoa was the great mart, or emporium, of English goods for Upper Italy, and our traders then kept goods in stock in Porto Franco, and received orders or sold in the interior from such stocks. The principal articles of import from England are coal, iron, and other metals in a more or less advanced state of manufacture, articles of colonial produce, cotton goods, yarns, raw cotton, woollen stuffs, chemicals, cured fish, and hemp thread. In manufactures, native industry has been greatly developed, and the production, especially of the stuff called "bordatte," has enormously increased, as the men prefer it to English shirting, and the women wear it instead of prints. It seems to be the general belief that the cotton industry will hold its own well against English competition in coarse goods, and that in these the import is likely to fall off; but that, probably, the aggregate value of cotton goods may keep up owing to the rapidly-increasing wealth of the district. The consumption of English cured fish, the cod, pilchard, and herring, has increased largely, and the import may be extended. With regard to codfish, the French cured fish is preferred, and enjoys a relative advantage in price; but notwithstanding this, and the bounty allowed by the French Government to favour the trade, it gradually decreased from an average import of ten cargoes a year until, in the year 1863, the direct importation ceased altogether, and is now limited to a very few thousand quintals from Marseilles, while the import of English cod has risen in ten years from about 50,000 quintals to 85,000. Of herrings, 10,794 barrels were received in 1875 against 13,892 barrels in 1874; of pilchards, the imports reached 3,200 hogsheads against 3,084. The import of coal shows a continuous increase until 1875, when it reached the highest figure ever yet attained, 405,000 tons of English coal having been imported in the year, besides about 70,000 tons of French coal, exclusive of what may be conveyed inland by rail. The principal exports to Great Britain or British possessions are olive oil, cheese, silk goods,

macaroni, &c., or "pasti," gun-stocks, and other manufactures of walnut-wood, paper, coral, marble, viren, and copper wares.

The arrivals of shipping at Genoa in the foreign trade in 1875, as we learn from the same sources, show a total of 2,713 vessels, tonnage 1,097,594: of these 406 vessels, tonnage 290,375 were British; 1,644, tonnage 581,280 Italian; 840, tonnage 107,827 French; and the remainder of different nationalities. In the coasting trade during the same year the arrivals had been 3,050 vessels, tonnage 408,140, against 2,929 vessels, tonnage 396,049 in 1874. Of these vessels in 1875, 226 tonnage 87,450 were French steamers, against 197, tonnage 75,770 in 1874; almost the whole of the remaining tonnage in both years being under the Italian flag. In the direct trade with England there were 371 British vessels, tonnage 272,878; Italian, 387 vessels, tonnage 178,190. Of the Italians, 17, tonnage 16,720, were steamers, very nearly all the rest being coal-laden sailing vessels; of the English arrivals, the rest with the exception of 95 steamers of 68,090 tons, which were coal-laden, being steamers with valuable cargoes of various merchandise.

There have been complaints of the tardiness shown in effecting requisite public improvements, neither Government nor the municipality being prepared to furnish money even for the works urgently needed to maintain the struggle in which this port is engaged with her powerful rival Marseilles. The year 1875 was, however, marked by the magnificent gift of a private individual who has stepped in at a critical moment, and has nobly disposed of a considerable portion of his great wealth to assist his native city to maintain her proper place at the head of the commercial movement of the Peninsula. The Duca di Galliera, Principe di Lucedio, whose name deserves to be recorded in the annals of Genoa, has given the enormous sum of 20,000,000 lire (roughly £750,000 sterling) towards the completion of the long-talked-of harbour improvements, the only conditions of his truly princely gift being that something should be decided on and carried out at once, and that the plans determined upon should be satisfactory to and accepted by the Municipal Council and himself. Thanks to this noble gift of their townsman, the Genoese are at last in a fair way to commence the works which are indispensable to prepare Genoa for the extension of trade that the St. Gothard Tunnel should necessarily effect, and if only the blessings of peace are granted to Italy better times in the immediate future may be hopefully anticipated for the still thriving port of Genoa.

THE LIFEBOAT BRIDGE AND LIFEBOAT IN STEAMERS.

THE following paper by John White, Esq., of Cowes, was recently read at the Royal United Service Institution :—

“ I feel gratified by the courteous invitation received through the Chairman, to read a paper before you giving a description of the lifeboat bridge and lifeboat lately fitted on board Her Majesty's Ship *Orontes*, by order of the Lords Commissioners of the Admiralty, which lifeboat was launched from that ship on the 19th February last by Captain Seymour and his officers, in the presence of the Admiral Superintendent of the dockyard, the Chief Constructor and his staff, several captains in the Royal Navy from various ships, also Captain Brownlow, who attended from the transport department, all of whom expressed themselves highly satisfied. Since then the *Orontes* has sailed for India with this bridge and boat permanently fitted.

“ Before commencing I trust to be pardoned if I offer a short account of the origin of the plan which has ultimately resolved itself into the present bridge known as ‘ *Hire and White's Lifeboat Bridge*.’

“ It is now about twelve years since (say in 1864) that Captain Hire, R.N., expressed a wish to see me on board his ship the *Orontes*, then refitting in Portsmouth Dockyard. On meeting him there a conversation ensued on the possibility of making the ship's bridge float in case of accident or emergency, his ship, as he stated, often having a thousand souls on board, while the boats (although the full complement of the establishment, and including four of Lamb and White's lifeboats) could not accommodate more than two hundred, or two hundred and fifty men with safety even in moderate weather.

“ We talked the matter over on the bridge of the ship, and after giving it much consideration, came to the conclusion that, although the bridge might be so constructed as to be detached and made to float off as a raft, there would still be great danger in the event of the vessel sinking, of the raft being fouled by the yards, braces, stays, &c., and so be carried down with the ship.

“ Besides this, we realized the fact, that if floated clear of the ship, a raft would not be navigable, and in the event of being far from land and any sea on, would be unmanageable with its living freight on board, rendering the chance of reaching shore but very slight. The idea of the life-raft was therefore abandoned.

“ Still, some efficient and trustworthy expedient was absolutely necessary in case of disaster by collision, fire, or shipwreck, in addition to the boats belonging to the ship. This was painfully experienced in the case of the sinking of Her Majesty's ship *Birkenhead* in fine weather, when

A

so many gallant officers and men, 'the bravest of the brave,' were doomed to perish with the ship for the want of some such efficient means of escape.

"On further ventilating the subject, the thought then suggested itself, that if one or more lifeboats of large dimensions could be carried and stowed athwart the ship, which could be launched in a few minutes on ways similar to ordinary launching-ways, without the delay of hoisting out in the usual manner by tackles and gear, the desired object might be accomplished.

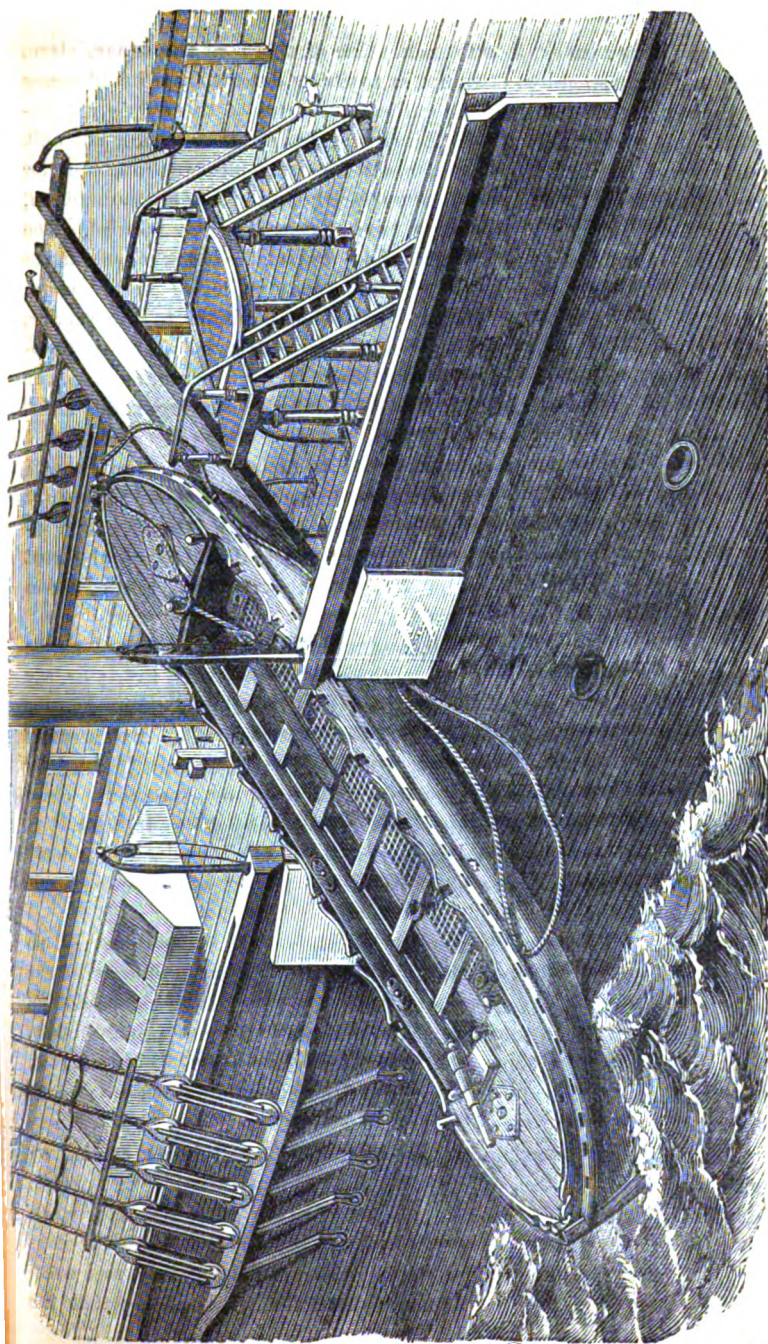
"On my return, I caused working models to be made to illustrate the idea, and by these and by practical suggestions it was at last perfected, and assumed the form in which you now see it.

"It now remains for me, Mr. Chairman, to give a brief description of the plan, which I will illustrate by drawings and working models.

"The model before you represents the bridge-boat in her position on the bridge. She is on her launching-ways, and these have rollers fixed in them, upon which the bilge-ways of the boat rest, these bilge-ways being fixtures incorporated in the build of the boat. The launching-ways, although forming part of the bridge, are so arranged that by removing the stanchions at the end, it is tipped or lowered to either side of the ship with the boat upon the ways until it reaches the gunwale, forming an angle of about 20° . The boat being now in her launching position is kept in place by two strong stops or dogshores. On the signal being given, the dogshores are easily removed, and the boat on being released shoots off with great velocity, acquiring sufficient momentum to carry her a long distance from the ship.

"The *Orontes* lifeboat when launched, went more than 150 yards from the ship in the teeth of half a gale of wind that was blowing at the time, the boat shipping only a small quantity of water, from which she freed herself in one minute through the tubes in her bottom.

"At the suggestion of Admiral Sir Wm. Mends (Director of Transports) the boat, originally designed with *two bows* for saving life only, had been altered into a square stern, with a flap to let down so as to be utilized as a horse-boat, as per model on the table. As some doubt existed as to the launching this boat stern foremost, she was, after having been launched bow foremost, hoisted on board by a single tackle from the mainyard; and being again placed on the bridge was then launched stern foremost, and with equal success, the momentum carrying her nearly as far from the ship as when launched by the bow. This is accounted for by the fact of the keel having sufficient camber, or round up abaft, to enable the boat to take a beach for the embarkation or landing of horses and field-gun. On this occasion, the boat shipped even less water than when launched by the bow.



THE LIFEBOAT BRIDGE.

“I may here remark, that the alteration of this boat to a square stern, specially for troop-ships, does not in any way detract from its efficiency as a lifeboat, or for fulfilling the various purposes of the ship's requirements; on the contrary, she is thereby rendered more useful, not only as a horse-boat, but more convenient for watering, coaling, and for carrying out anchors, as these latter can be slung under the bottom, passing the ropes up through the tubes as occasion may require. The boat may also be fitted with a swivel gun (Gatling or other) at the bow, and with the field-piece in addition ready mounted in the stern, would become a useful and most formidable auxiliary to the service, particularly in expeditions in rivers, where light draft of water is absolutely essential—on such occasions, the air compartments could be appropriated as lockers, and be made available for stowing small arms, ammunition, provisions, and men's kits.

“The length of the *Orontes's* lifeboat is 40 feet (equal to the breadth of the ship), and her beam is 10 feet 6 inches. The launching draft *light* is 12 inches, and she will draw 2 feet water with 8 horses, a field-gun mounted on its carriage, with ammunition and 20 men; the boat having then a clear freeboard of 2 feet to the gunwale, and of 2 feet 5 inches to the top of the washstrake.

“The total displacement of the boat with 12 inches freeboard at the gunwale, or 17 inches to the top of the washstrake is 23 tons; or, say she would carry 23 tons dead weight, leaving 12 inches freeboard to the gunwale, or 17 inches to the top of the washstrake. The displacement of the air compartments is 10 tons, so that she would, even if filled by a sea, or stove in the bottom, float with 100 men, or she would carry 250 men under ordinary circumstances, representing 16 to 18 tons.

“Should greater capacity be necessary in a boat of this length, it could be obtained by increasing the beam; a boat of 12 feet wide being capable of carrying 300 men.

“I trust that I have made the matter plain. Of its importance, no one will doubt who reflects on the sad catastrophes with which we have become of late but too familiar, and the list of which it would be painful to recall, were it not in the hope that decisive steps may now be taken, and even, if necessary, some plan be made *compulsory*. I trust that, whatever plan may be adopted, our exertions in setting forth this particular scheme may not prove altogether fruitless.

“Realising the now acknowledged fact, that small boats carried on davits are seldom, if ever, of practical utility to any considerable extent, owing to the danger of their being stove in, either by collision, or when lowering from the davits; or again, if lowered, the risk of their capsizing, by reason of the numbers who insist on pressing into, and overcrowding them, as the last chance of life; further, believing that the

plan I have indicated of the large-sized lifeboat, carried athwart ship, and always ready for immediate launching, *is the best* that has yet been devised, I can but be gratified that the Lords of the Admiralty have been the first to adopt it in troop-ships (constantly carrying such large numbers), and that they have it now in contemplation to fit other troop-ships with these boats.

“So much for the lifeboat and bridge as applied to transport and troop-ships.

“Of its easy application (particularly as a two-bowed boat, as in the sketch) to passenger ships of all classes I need hardly speak. A plurality of these bridges and boats may be carried, according to the size and requirements of the ship, or the number of souls on board.

“I would also mention the value of such a boat in the event of falling in with a ship in distress, as on obtaining the weather-gauge, the bridge-boat might be immediately launched, and veered down upon her, thus rendering assistance without endangering the lives of brave volunteers, as has so often been the case.

“I beg to thank you for your kind attention to a subject which, in the interests of humanity, you will deem second to none—namely, that of saving life at sea.”

CAPE TAKLI.

HINTS TO CAPTAINS NAVIGATING THE BLACK SEA, &c.

DURING the last year I endeavoured to call the attention of shipowners and captains to the system of engaging men at Constantinople who call themselves pilots, but who are, in reality, only stevedores and interpreters, to assist in conducting ships through the difficult navigation of the Black Sea, the Straits of Kertch, and the Azof. My exertions were kindly appreciated and favourably noticed by the *Shipping Gazette*.

The following little narrative will tend to corroborate my remarks, and, as I hope, warn shipowners and captains of the great risk of life and property incurred by the system I allude to.

Last week the captain of a large and valuable steamer, who had never been in these seas before, was, as he informed me, strongly recommended by his broker, at Constantinople, to take a pilot and stevedore from thence to proceed to Yesk, to engage men to assist in loading the ship, and return with her to Constantinople, for which services he

was to receive the small sum of £70, with the promise of £5 gratification, if the captain was satisfied. Of this sum, the captain informs me, that about £20 were paid for labourage, leaving £55 as a remuneration for the valuable services of the so-called pilot; of course, he was not satisfied, declaring that he would be out of pocket by the transaction.

Let us now see what those services were, and what might have been the consequences if the captain had not the prudence to go contrary to the intention of his "pilot." When in the neighbourhood of Takli light, the captain called out "Pilot, we are running straight in to the land; look at the land ahead." The pilot, a Greek, of course, replied "No, no; that cloud—that fog—no land—me tell you right." The captain said, "Right or wrong, I am not going to continue this course," and immediately put her head out seaward; and it was well he did so, for land it was sure enough. The pilot went by the old light, as he had seen it last year. When the captain altered the course, the pilot was very indignant, exclaiming, "My God, captain, you lose ship. Me no good; I tell you that fog." And yet, without the firmness and good sense of the captain, the ship would certainly have been lost, or, at least, stranded. And now, shipowners, and you worthy captains of steamships, men of superior education, and good navigators, is it nothing to you, all ye that pass by Behoul—and see if there is any danger equal to this danger of misplaced confidence? Will you persist in engaging stevedores and interpreters, and in placing them on the bridge in charge of your ship when you can easily procure equally good stevedores and interpreters, and better and *bonâ fide* pilots at Kertch? If so, go a-head until you are brought up all standing, when you will say, "Who'd have thought it?" Have more confidence in yourselves. You are more worthy of confidence, and know your work well. Save your seventy pounds, and with them your ship; you will not regret taking the sole responsibility on yourselves, and you may be well assured that your owners will not regret it. And, with this, I bid you God-speed, hoping to see many old faces again in these parts, unaccompanied by pilots, stevedores, or interpreters.

PETER BARROW,

H.B.M.'s Consul, Kertch.

June 12, 1876.

DISCIPLINE IN THE MERCHANT SERVICE.

To the Editor of the "Nautical Magazine."

SIR,—Much as has been said and written of late on the above subject, it does not appear that it has been exhausted. On the contrary, much clearer views will have to be enunciated before a conclusion can be arrived at sufficiently clear to enable Parliament to legislate on the question in anything like a satisfactory way. The article of Sir Travers Twiss, in your June number, must have been read by your nautical readers with great interest. It states the case in the fairest possible way, defines the principles exactly, and with two exceptions (of which hereafter) arrives at very clear conclusions as to the present and future necessities of the case.

It is very satisfactory to find so high an authority stating in positive terms that "it would be highly dangerous to limit in the slightest degree the absolute authority of the master of a ship to enforce obedience to his orders on the part of the mariner;" and I thoroughly go with him that "it is not necessary that any change should be made in the principles of the law which govern the mutual relations of master and mariner on the high seas." But although both these statements may be concurred in on all sides, it still remains to ask, How is obedience to be enforced? and how are those principles of law to be put in practice?

The two points above referred to as not sufficiently clear in Sir Travers's article are—first, that he seems to take it for granted that it is feasible to *punish* a seaman on board a merchant ship; and, second, his suggestion of a ship council is vague. Another correspondent in your July number, who signs himself "W. H. N.," has, perhaps without intending it, shown the great difficulty of practically dealing with the question. In no less than seven places he speaks of punishment, but when he proceeds to define its nature, he suggests that "a man should be put in irons, in his watch below, only *letting* him perform his ordinary duty during watch on deck." Surely "W. H. N." must have been laughing in his sleeve when he penned this. Why the very offence for which it would be necessary to punish would be sure to be combined with, if not solely, a refusal to perform duty. Is it, therefore, likely that a refractory seaman would be more anxious to be *allowed* to perform his duty because the portion of time he would be entitled to rest is to be spent in irons? The suggestion of "W. H. N.," as to the composition of the ship's council, appears equally impracticable. What if the crew refused to elect the one or two delegates from amongst themselves to assist at the council, which, I venture to say,

would be in nine cases out of ten? The capstan-head court martial would, I suppose, proceed with the master and mates, and the seamen (if he consented to come aft to attend, which is also problematical), and the crew standing by, perhaps laughing at the whole proceeding. Practically, a capstan-head inquiry does now take place. If a man is ordered aft, with the intention of punishment (other than arrest and confinement), which punishment must necessarily be confined to the stating to him his offence, and the intention of the master to log him for it, the proceeding is generally conducted in the presence of one or both mates, and often of several seamen of the crew.

The public, and especially the legal portion of it, seems to me to forget that the majesty of the law which in a court of justice on shore seems to rest with the Bench, does, in fact, lie in the policeman's truncheon. Without that at hand, I fear neither verdict of jury nor decision of judge would meet with more respect on shore than the order of a master of a merchant ship, and, in fact, in the absence of that truncheon force on the high seas lies the whole difficulty—a master is a police magistrate, *sans* the police.

I hope not to be misunderstood, or to be supposed to advocate brute force in maintaining discipline; all I contend is, that in the absence of that all-powerful last resource of law, you must find some expedient more persuasive than repeating an order with the form and ceremony of a ship's council to enforce obedience.

We live now in a different state of relations as between employers and labourers than we did fifty years since, both at sea and on shore; and it is not desirable, even were it possible, that now as then the master and officers of a ship should be called on to exercise the functions of the policeman as well as those of the magistrate. Neither are all masters fitted, by habits or education, to be intrusted with such powers. It is not altogether the fault of the seamen that this rife spirit of insubordination has grown up in the merchant service—other forces have assisted to bring it about. Still, it is absolutely necessary for the safety of all ships, seamen, and the public, that insubordination should be restrained and obedience enforced. Again, I ask, how? I am not now speaking of open mutiny; such must always necessarily be dealt with as promptly and effectually as the circumstances and the means at disposal of the master will allow. I am treating only of those minor cases of insubordination and disobedience which unrestrained, or ineffectually attempted to be restrained, as at present, often lead to loss and injury to ship and life, and sometimes lead up to actual mutiny. The only practicable answer to the question which suggests itself to my mind is that the punishment to which a seaman renders himself liable by the laws for an offence should be meted out to him on his arrival in port *without fail*.

It is the uncertainty of the punishment on shore that robs it of all its deterrent powers at sea. As Sir Travers Twiss mildly puts it, "Some amendment should be made in the present legal procedure." Neither master nor seaman should have to rely on the vagaries and—shall I say?—prejudices of a magistrate in many cases utterly unacquainted with the nature of life and duties on board a ship on a long voyage. To deter seamen, it is imperative that the law should be administered strictly and promptly without favour or sentiment. Let them feel that if they render themselves liable they are sure to have the penalties inflicted, and they will not treat the laws as the laughing-stock they now do.

The Merchant Shipping Act, 17 & 18 Vict., defined certain offences and enacted certain penalties and punishments. It may or may not be desirable to amend that Act; but if so, it certainly will not improve discipline to add to the number of offences or to further limit the range of the penalties. If that Act, even as it stands, were justly and faithfully administered, I maintain that the most brutal of seamen would think twice before committing himself to the certainty of having its penalties enforced in his own case.

The common law, I presume, puts into the hands of the master in serious cases ample authority to restrain and right of arrest, subject of course to his responsibility to the laws if unduly or unnecessarily exercising them. No legislation, therefore, can render more effectual what we may call the direct means for *prevention* of crime on board ship. It is to the punishment of it afterwards on shore that attention must be directed, for on board a merchant ship I believe any scheme for subjecting seamen to punishment legally and effectually, without the *arm* of the law, would be found impracticable.

In the face of the general breakdown in the administration of the law relating to ships and seamen by magistrates, as at present, it is scarcely possible the system can remain long in force. Whether the administration should be transferred back to the higher courts, or whether some other tribunal more specially acquainted with the subject be substituted, is a question of detail requiring further and more serious consideration.

I am, Sir, your obedient servant,

W. P.

14th July, 1876.

DIRECT-ACTING SPRING SAFETY-VALVES.

(Communicated by "MOLECULAR VORTEX.")

THE Clyde engineers are puzzled and perplexed with spring safety-valves, and in their bewilderment have, instead of devising a valve that contains less of the objectionable features of ordinary common valves, applied to Sir Charles Adderley to alter the Board of Trade instructions so as to fall in with their views. They have asked him to allow them to reduce the area of the safety-valve, also to reduce the number of safety-valves. At the same time they confess their inability to make an efficient spring safety-valve of the area required by the Board of Trade, notwithstanding the very generous allowance of the Board of Trade of 10 per cent. accumulation of pressure. They have also applied to be allowed to reduce the section of steel of which the spring is made, regardless of the fact that this will endanger life and property. They have further asked for permission to subtract from the easing-gear by the substitution of lever, or other less efficient arrangement, for efficient screw easing-gear.

Proposition.—The relieving power of the valves should be twice the generating power of the fires. Two valves are applied to one piece of boiler, and if the two are only able to relieve the boiler and one meet with an accident which disables it, then the remaining one will be insufficient for the purpose of relieving the boiler, but if one of the two be able to relieve the boiler and one become disabled, then the remaining one will be capable of doing so, thus maintaining safety on board ship; but these valves should be perfectly automatic in the exercise of their duty.

Size of Safety-Valve.—The Board of Trade rule is a half-square inch of area of valve to each square foot of grate surface, divided into two valves: this is really the most efficient instrument for relieving the boiler which can be made, and is practically suitable for all pressures between 55 lbs. and 90 lbs. pressure; and the pressures of the present day are about as follows: one-fourth of the ocean-going steamers built for the last ten years are working at 55 lbs., one-fourth at 60 lbs., one-fourth at 65 lbs., and about one-fourth at 70 lbs., the mean pressure of these being about 60 lbs. per square inch. It is true that a few of Mr. A. Holt's and Guion's steamers work at 80 lbs., and probably one or two more fitted out by J. and J. Thomson, of Glasgow, and one by the N.E.M. Engine Company, and one by John Elder and Company, intended to work at 150 lbs., but working at 90 lbs.

The mean pressure common in ship's boilers at the present time is 60 lbs. above atmosphere, or about 75 lbs. absolute. This being the

practice of the present day, let us turn our attention to page 26 of the Scotch Committee's Report on Safety-Valves (which report is confirmed by the Institution of Engineers and Shipbuilders of Scotland), and we find the Committee, after sitting four years on the subject, pronouncing the Board of Trade size of valve to be perfect at 78 lbs. absolute pressure. There is, therefore, really only 2 lbs. difference between the present practice and that state of things which that Scotch Safety-Valve Committee regard as perfection. At the time when the Scotch deputation raised a clamour against the Board of Trade rules their indignation exceeded their knowledge, and by their own mouths are they now condemned.

"Now" (observed the deputation) "it is a well-established fact that the area required for the escape of a given quantity of steam in a given time from a boiler is inversely proportional to the absolute pressures." This rule is not correct; for the proportion of expansion to weight of steam discharged at the orifice is considerably greater in the higher than in the lower pressures, and in some cases of safety-valve practice it is as much as 80 per cent.

"On what principle, then, are we" (asked the deputation, indignantly) "with these increased pressures to be bound to use the same area of safety-valve per square foot of grate as formerly?" They can now answer the question themselves, and the answer is, "For the very simple reason that the valve was formerly too small, but is now exactly the proper size at the present pressures." But there is another very cogent reason why, in my opinion, the Board of Trade valve should not be reduced. The engineers not only on the Clyde, but everywhere else, cannot make a valve even of the Board of Trade size which will carry away all the steam generated by the fires at the present pressures. All of the valves have an accumulation of internal pressure; and when spring-valves first came into use on board ship engineers asked for 5 per cent. of accumulation, thinking they could make an ordinary valve, loaded by spring, pass the test; but finding the accumulation greater than anticipated, they have asked for a 10 per cent. margin. That was conceded to them by the Board of Trade, and they cannot make an efficient working valve even at that. They have been told from the beginning, and it is repeated now, an ordinary valve, loaded by spring, can never be an efficient valve for two reasons, both of which act in concert to prevent it, producing by their combined effort a double evil. First, the evil of the increasing resistance of the spring increasing with every increase in the rise of valve from its seat; secondly, the reduced force acting on the lower surface of the valve, which reduction of force increases with every rise of the valve from its seat until the valve rises to one-fourth of its diameter, and at this height, if well constructed, it will have no static force on its lower surface at all, and no force except

that due to guiding the steam out through the orifice. For example, let a $4\frac{1}{2}$ -in. valve be loaded to 60 lbs., and, in order that it may be master of the fires, let it be lifted $\frac{1}{8}$ in. from its seat. The load, represented by a well constructed and efficient spring compressing $\frac{1}{8}$ in., will be 160 lbs., and let us say that the mean force acting on the lower surface of the valve when up from its seat is 55 lbs., or 5 lbs. of reduction due to the escape of the steam through the orifice, then, as there are 16 inches in the valve $16 \times 5 = 80$ lbs., and 80 lbs. added to 160 lbs. is equal to 240 lbs. Now, this is the difference of force between the upper and lower faces of the valve in its position on its seat, and in its position when in the act of relieving the boiler properly, and as the valve contains 16 inches, 240 divided by 16 is equal to 15 lbs., and 15 lbs. is equal to 25 per cent. of accumulation. But the Board of Trade has had spring-valves submitted for its tests which gave cent. per cent. of accumulation, and have raised the ire of certain influential persons for declining to pass them. How could the Board of Trade pass such valves and justify itself as guardian of the public safety? The new Courts of Appeal may step in and answer this question, for those courts will be able to direct the grant of certificates after the Board of Trade has regarded machinery, &c., as unsafe. There are spring-valves made in every respect according to the Board of Trade regulations, which are efficient valves, and admit of no accumulation at present pressures, and they are most perfect when proportioned to the Board of Trade rule of a half square inch to each square foot of grate.

To construct an efficient spring safety-valve in accordance with the Board of Trade regulations—

- (a) The centres of force, resistance, and motion should all lie in one and the same straight line.
- (b) The springs should be constructed upon the unerring proportions of geometry, sine, cosine, and radius.
- (c) The combined evils of increase of resistance of spring and diminution of force on lower surface of valve should be overcome by the construction of a chamber outside the seating orifice of the valve. In this chamber the force of the escaping steam should be made use of to lift the valve well up from its seat.
- (d) Then the orifice leading out of this chamber into the atmosphere to the seating orifice of the valve should be proportioned in such a manner that whenever the pressure in the boiler has fallen one pound below that at which the valve blows off, the issuing current of steam between the two orifices will create a perfect vacuum in the chamber surrounding the valve; and this vacuum acting over the area of the concentric chamber will bring the valve back to its seat instantly.

The Board of Trade makes no objection to this type of valve, and during the last twenty months it has passed nearly 8,000 of them, more than the number made by the combined marine engineers, not only of the Clyde, but of Great Britain all put together, so that whatever may be said of the Board of Trade checking inventions this is a very convincing proof that they do nothing of the sort. Let the reader turn to Plates 3, 4, and 5 in the transactions of the Institution of Engineers and Ship-builders of Scotland for the session 1873 and 1874, he will there see an arrangement that will lead him to ask whether the Board of Trade would have been justified or not in refusing to allow such machinery to go to sea.

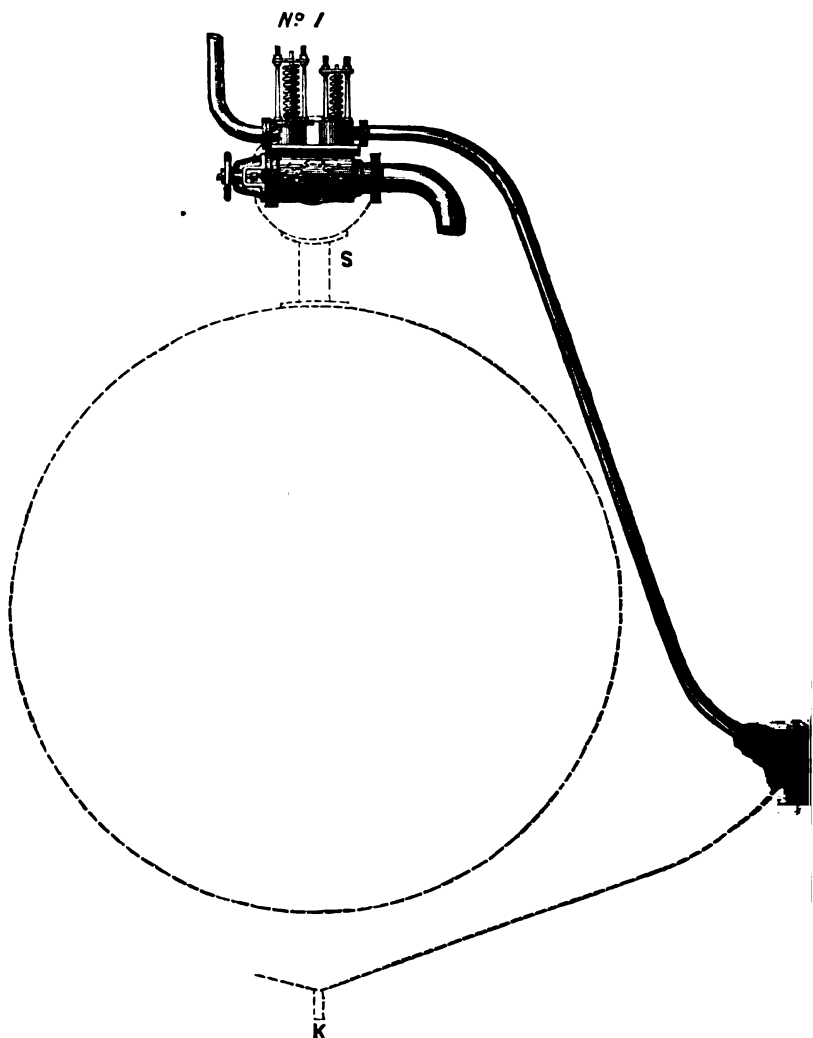
Further, says the report of the Clyde engineers, why should screw easing-gear be used for safety-valves, when it is manifest that other arrangements would be equally efficient? I say that other arrangements would not be equally efficient. They may be cheaper in construction by about eighteen-pence on a pair of valves, but not so efficient.

If lifting-gear is to be applied at all, it ought to be applied to both valves. If it be of any use on one it is of the same use on the other. Let a ship be at sea, and let the valve with easing-gear be disabled, there is only the valve without the easing-gear to depend on, and if the easing-gear be a necessary accompaniment to the valve, what is to be done now there is none? It must either be fitted to both, or it must be shown not to be required at all, or it must be shown that in case of disablement it can be unshipped from the one and shipped on the other immediately.

Condition 7. (I will state it in full.) "That the size of the steel of which the spring is made is to be found by the following formula." (Here follows the Board of Trade formula and co-efficients.) "Now we consider that the formula which is given when applied to springs of the best material and temper gives a great excess of strength over what is necessary or desirable. Its application positively hinders the making of efficient spring-loaded safety-valves, because with such a strength of steel as it requires the requisite range of elasticity in the spring is difficult to obtain within reasonable compass. A constructive engineer may with advantage employ a formula for determining before hand approximately the size of steel and other dimensions of the spring for a given purpose, but the purposes of a Board of Trade survey would be much more effectually secured by the surveyor seeing the springs tested by a load exceeding by a reasonable amount the intended working load."

This is the most important clause in the whole report of the Clyde engineers, for it strikes at and saps and undermines the root of the principle of safety, and it is an open confession that they cannot make an efficient spring safety-valve which shall be a safe piece of machinery.

The Board of Trade officials have made experiments on springs (and using the words of the report) of the best material and temper, and they know exactly the load at which those springs take "permanent set" when hardened to a temper that will just prevent breakage, and they



also know the load at which a spring will break when hardened to a temper that will just ensure its "breakage" before taking "permanent set" and the load which the formula assigns is just one-sixth part of that.

Now, the Engineers of the Clyde must come boldly forth and say, do they mean to lower the margin of safety of the spring below 6 to 1, when fitted out. If they do, danger and disaster will assuredly follow in its wake.

The corrosion of the spring is so rapid in some waters, and with priming boilers, and with donkeys exhausting into the safety-valve box, that in three months a $\frac{3}{4}$ -in. spring has become a $\frac{1}{2}$ -in. one, and a $\frac{1}{2}$ -in. spring become a $\frac{1}{4}$ -in. one. Now let the $\frac{3}{4}$ -in. spring be eaten down to $\frac{1}{2}$ -in. and for example be upon a 6-in. valve, the ship stops suddenly at sea, the stoker pulls down the easing-gear, and up goes the valve to the stop, equal to $1\frac{1}{2}$ -in. above its seat, and away goes the spring, and away flies the valve like a cannon ball, clearing every thing before it, and out comes the boiling water and steam, through a clear 6-in. hole in the boiler, scalding all persons around. Will the Clyde engineers now tell the country why they should compel the Board of Trade to certify such a dangerous contrivance as a weak spring, when a safe, simple, and strong one is in almost common use.

We have now been led on by the deputation and its report until we have foregathered with the Safety-Valve Committee and its report. The combined knowledge of this Committee is concentrated in a spring-valve which they recommend to the Board of Trade.

Fig. 1 shows a pair of spring safety-valves fitted to the top of a boiler, the waste-pipe from the working valve to be led out at D in the ship's side at about 10 feet below the water-line, and by the Committee named "the silent blow-off valve." But has it not entered the heads of the Committee that they had here constructed and recommended a complete and perfect "syphon." Let the condensing power at the orifice D be equal, or nearly equal, to the discharging power of the valve. A vacuum, or partial vacuum, will be formed at D, the water in the boiler will rise by virtue of the difference of forces at S and D, and the syphon is complete. The critic at the Board of Trade, whose acumen rejected this valve, showed himself an abler engineer than either the deputation or the Safety-Valve Committee, or both combined.

This valve was published on the title-page of the Safety-Valve Committee's report, and highly recommended to the Board of Trade, as having been already well tested in practice. It is to be regretted, however, that someone had not the courage to read a paper on it before the Institution, for then it would have had to stand the criticism of the members.

Some books are lies frae end to end,
And some great lies were never penned.
Even ministers, they hae been kened
A rousing whid at times to vend,
And nail't wi Scriptor.

But this that I am gawn to tell
Is just as true's the Deil's in h—l,
Or Dublin city.

During the discussion on safety-valves at the Scotch Institution in Session 1874-5, this valve was put forward by the Committee, and by its chief promoters, Messrs. Rowan and Brownlee, and it was there distinctly stated within the Institution that ten or a dozen of these valves could be seen working in and around Glasgow. Six out of the ten stated were discovered and tested, and not one of them was spring-loaded. They were all dead-weight valves together, and this discovery of dead-weight for spring-loading was revealed at the following meeting of the Institution.

The last paragraph of the report complains of the perfection of action required by the Board of Trade for spring safety-valves, allowing as it states only 10 per cent. of accumulation. The writer has never ceased to tell them from the beginning that no ordinary valve loaded by a spring could possibly carry away all the steam generated by the fires, and that it was a worse arrangement than the dead-weight-loaded valve. This they appear, at last, to be conscious of, for their report is a full confession of the fact. They would lower the margin of safety of the spring in order that they may the better adhere to the old-fashioned valves, when it can be shown that one properly-constructed spring safety-valve, in every respect in accordance with the Board of Trade regulations, and having a margin of safety of 6 to 1, will beat twenty of these valves if all were placed on the same boiler. Where, then, is the necessity for lowering the safety in the face of those explosions constantly occurring, as the *Marcasite*, the *Renown*, and later the *Thunderer*, and others which could be named? The accusations against the Board of Trade vanishes into thin air the moment truth comes on the scene.

I have another very ugly question to put to the Clyde engineers, and the vocabulary of ugly things is far from being run out. The mouths of the Board of Trade officials, and very wisely so, are closed against public cavil. But do the Clyde engineers forget that in the very question of spring safety-valves, inferior designs have been sent in to the Board of Trade. These have been pointed out and suggestions of improvements made by the chief surveyor; the drawings have been altered to the suggestions and accepted by the Board of Trade. The proprietor has been known to go and patent, in his own name, the suggestions of the chief surveyor, and afterwards pervade the face of his drawings with the onerous words, "Patent improvements in spring safety-valves."

The Board of Trade cannot surely in these instances be said to have discouraged improvement, and to have been all along, as the Clyde engineers wish to make out, stupid and ignorant.

The report also wishes the time of trial to be reduced below twenty minutes, on the ground that the water may get too low in the boiler. I am, indeed, very sorry to see such a great want of knowledge as this report contains.

The first five minutes of this twenty is a very poor test; the second five minutes is a little more severe; the third five minutes is an ordinary test; and the fourth and last five minutes is a good test, and if it were continued for another five minutes it would be more severe and better still for public safety.

Let us now investigate the plea of lowness of water. The average length of a gauge-glass on a marine boiler is 15 inches, and so long as there is water seen in the glass, there is safety from that quarter. At the beginning of the twenty minutes' trial, let the water be at mid-glass $7\frac{1}{2}$ inches above the bottom. Let the test of twenty minutes now begin. The water will be lowered, by good firing, $2\frac{1}{2}$ inches during the twenty minutes; but, to make a good allowance, let it be lowered $3\frac{1}{2}$ inches, there still remains 4 inches of water in the glass at the end of the test. How foolish does the excuse of the Clyde report appear. Had the compiler of the report known that the Board of Trade keeps a correct record of the position of the water in every boiler it tests, he would have refrained from such notions for excuses, which only leave the impression on the mind of the reader that there is, even at the present time, a great lack of knowledge on the part of the compilers of the report on the subject on which it treats.

MOLECULAR VORTEX.

Works of the "Ant and Bee," Manchester.

MERCHANT SHIPS; CREWS COMMITTED TO PRISON.

THIS is the title of a Parliamentary Paper, No. 444,* of this session, presented by the Home Office on the motion of Mr. Plimsoll. Any person who expects to derive much comfort from this paper in the way of obtaining materials for attacking the shipowner and the Government will be grievously

* "Return of the crews of merchant ships committed to prison in 1873 and 1874 for refusing to proceed to sea, showing the number of men, name of ship, and term of imprisonment, with reasons alleged by seamen for refusing to go to sea; and stating, also, in what cases the men are known to have received wages in advance, and showing the amount received, and whether in advance notes or in cash; and stating in each case whether the committing magistrate availed himself of the power conferred upon him, to order a survey by one of the Surveyors of the Board of Trade."

disappointed. A more dismal list of breaches of contract and neglect of duty on the part of Mercantile Jack could not exist. It is a narrative of debauchery, drunkenness, dishonesty and lying on the part of a minority of that section of the British workman who goes to sea in ships, that could not be believed were it not contained in the sober pages of a Parliamentary Return, and is one that the most fertile brain of the novelist would be incapable of inventing.

Before we proceed to review the return itself, we should like to note that, like many returns presented by the Government, it contains no analysis or abstract or total to enable the reader to grasp its import. We should also wish to remind our readers that this return is, as it were, the final chapter, the closing-scene of that drama or play whose plot and scheme were to show that the responsibility for desertions and derelictions of duty by seamen lay at the doors of the shipowner and the Legislature, inasmuch as it was alleged that the shipowners treat the seamen so badly and arrest him so unnecessarily and harshly, and the Legislature so effectively keep back from him the possibility of proving that a ship in which he had engaged to serve is unseaworthy, that his only chance of self-preservation lay in desertion, followed by imprisonment. The return now presented, however, instead of bearing out that view, proves conclusively what we have all along said, that it is the bad seaman and the advance-note system, and not the bad ship, or shipowner, nor the Legislature that is in fault, and on whose shoulders should rest the stain of recklessly jeopardising life and property at sea. It was one of Mr. Plimsoll's strong allegations that a seaman had no power to refuse to go to sea in an unseaworthy ship, and had no means of setting up as his defence for leaving his ship that she was unseaworthy. This allegation was inaccurate, like most of his allegations, for, at the time he made it, he ignored the provisions of the Legislature in behalf of seamen, and especially the Merchant Shipping Act of 1871. But be that as it may, it cannot be denied that the seaman now has more power to obtain a survey of a ship than either the master or the owner. So tender is the Legislature in its care for the seaman that it grants to him powers of obtaining survey which it persistently withholds from the owner. The tendency of legislation latterly, if in favour of any classes connected with ships more than any other class, favours the underwriter and the seaman.

The seaman having obtained such immense powers and facilities from the Legislature in the matter of setting the Board of Trade surveying machinery in motion, is not likely to neglect to use it if he thinks it will free him from an engagement, especially after he or the crimp has obtained and squandered the advance note. It is obviously to the advantage of the seaman to set that machinery in motion, whenever he

has the ghost of a chance of alleging, with anything approaching to an apparent truth, that a ship, or her equipments, berthing accommodation, gear, &c., are at all unseaworthy; and it is obviously to his disadvantage to call in the Board of Trade surveyor when this is not the case. The return before us shows how really slender was the allegation as to sailors leaving ships on account of unseaworthiness, and how little real need exists in the majority of cases for questioning seaworthiness. At least, this must be the opinion of the deserters themselves, for on looking through the return, which consists of twenty-nine foolscap pages, and at fifty men to a page (which, in the absence of any digest or total in running over the return, we put down as under the mark), gives 1,450 men. We find that in the whole of the return, with the exception of eleven cases, the seamen's statements were so untrustworthy when they alleged any complaints against the ship, that the Court made no order for a survey by a Board of Trade surveyor. The only cases (except those that were too absurdly frivolous to be for a moment entertained) in which the seaman relied for his defence on an allegation of the unseaworthiness of the ship, and in which the Court ordered a survey, were, as we have said, eleven in two years, and in every one of those cases the ship was, on survey, reported to be seaworthy. Let our readers think for a moment what this means, for the result is worth remembering. It means that in every case during the whole of two years, 1873 and 1874, in which the committing magistrate thought there was any necessity to call in the services of a surveyor, the ship was pronounced to be seaworthy. This is a result no one could have anticipated, but it is a result as satisfactory to the character of English ships and shipowners as it is discreditable to the British workman afloat.

Having shown the broad results of the returns for 1873 and 1874,* let us now turn to the excuses set up by the men as justifying their breach of contract, and their shameful acts of neglect and desertion. Here, again, we read as sober fact, in a State paper, what would not be expected outside the pages of a Christmas tale.

We select a few "reasons" at random. "No reason," "no reason except after having received an advance note he refused to join," "on the spree," "disliked ship," "did not sign to go," "made a claim for wages in the middle of the voyage, and refused to proceed," "had determined when a ship was ballasted on Saturday nights not to go to sea till Monday," "was drunk," "wanted to join a screw steamer," "because he was ordered to take his meals forward," "pleaded illness,

* The return we are reviewing is for the years 1873 and 1874—that is, for a period before the Act of 1875, giving a fourth of the crew power to demand a survey came into force—and we trust it may be continued for the years 1875 and 1876. We shall look for the result with much interest.

which doctor proved was untrue," "wanted more advance," "wished to get rid of apprenticeship," "Christmas time," "did not like the cooking," "I have nothing to say," "got drunk," "refused to go, no reason," "received advance note and got drunk," "had no clothes," "was with some friends," "had a letter from my brother and went to Bolton," "overslept myself," "sick after drunk," "was drunk and said he would not go," "will not go, was drunk when he signed," "it is all right," "went to see his mother," "a man told him ship was not going," "apprehensive the captain would run the ship ashore," "could not help it," "got an advance and got drunk" (this occurs over and over again), "wanted to get clear from bad weather," "deserted and entered in another ship," "signed for two ships and did not sail in either," "got his advance and was promised higher wages in another ship by a boarding master," "signed in another ship after getting his advance cashed," "mate pulled him back when he wanted to have a drink with the boarding master," "wanted another drink with the boarding master," "that the second mate grumbled as to the quality of the provisions," "ship sailed on Friday," "don't like the sea," "had made second engagement at higher wages" (fourteen of these in a batch), "wanted more drink," "there were coloured men on board," "went for a walk," "found a man in his room," "the galley smoked," "there would be a disturbance if he went," "refused to work in consequence of officers restoring order after a fight." These are some of the excuses set up by men; and there are besides very numerous cases of all sorts of allegations against the ship made in a state of semi-drunkenness, and disregarded by the bench as obviously lame and frivolous. This is the sort of men that spin their yarns to the idle and good, and deceive them altogether, and it has been on tales of this character that much agitation has been founded. Seamen may break their contracts, cause disturbances, act dishonestly, drink, swear, and lie, and debauch by wholesale; they may stop commerce, endanger the safety of the ship, leave her and her passengers to their fate, and yet such is the perversity of human nature, they are specially legislated for and petted, and the shipowner whom they wrong in every way is held up as if he were the ogre, and they, poor, innocent, trusting, confiding, simple-hearted victims.

Our readers must bear in mind that we are not now writing of the whole British Mercantile Marine, our text is "Crews committed to prison." The men we are writing of form the minority, and are disliked as much by the true sailor as by the shipowner. We should be very sorry in writing of the class now under consideration if our readers were to imagine that we were referring to the whole body of merchant seamen, amongst whom may be found some of our best, most useful, and most patriotic of citizens. It is as wrong for the other side to attack

the whole body of shipowners on account of a few rogues as it would be for us to tar the whole of the seamen of our Mercantile Marine with the same brush.

Another important lesson is conveyed to those who study this return aright, viz., the fearfully demoralizing effects of the advance-note system. Time after time do we read that the advance note had been obtained, and not only that it had led to drunkenness, debauchery, and breach of agreement, but had not even been used to purchase clothes, the very purpose for which its champions uphold it. We find, time after time, that men who had received their advance note and spent it, refused to go to sea on the sole ground that they were then, at last, without clothes. Those members of Parliament and business men who are against continuing this immoral system will find in this return facts to enforce their views: indeed, we are in hopes that the facts continually brought forward may ultimately convert even Mr. Bates, to whose influence the perpetuation of the advance note system is at the present time, in a great measure, due.

THE "THUNDERER" BOILER EXPLOSION.

AS the *Thunderer* was proceeding to the measured mile in Stoke's Bay, for her final contractor's trial, one of her eight large boilers exploded with terrific force. Up to the date of our going to press there are forty deaths, and forty more seriously injured, the result of the explosion. By the time this reaches our readers perhaps the papers will have announced the decision to which the coroner's jury have come as to the cause and the responsibility of the disaster. Of course we have formed our own conclusions, and some of these, we believe, we may state here without at all encroaching upon the forbidden grounds of matters *sub judice*.

Between the engineering of the Navy and that of the Mercantile Marine there are in many respects wide differences. The very few days in each year on which the Navy steamers are at sea under full steam power the greater number of engine-room hands, in proportion to the engine power and the general excellence of workmanship and material supplied to the Admiralty, contribute to a freedom from accidents and to a measure of success which is not always due to the perfection of the floating machinery, but often is in spite of its imperfections. What has done well hitherto does not demand improvement. Admiralty practice is even copied by some owners going into the steam trade for the first

time as the very best they can do. It seems as if the *Thunder* explosion has been brought about through the safety-valves of the exploded boiler not acting, the stop-valve of that boiler having by neglect not been opened. The explosion may possibly be yet accounted for in some other way; but the very fact of this being at present a likely cause, our attention is directed to the safety-valves of the Navy and their efficiency in comparison with those of the Mercantile Marine.

It has been often explained in our pages that the Act of Parliament in reference to safety-valves, when it directs that they shall be so constructed as to be out of control of the engineer when steam is up, means only, that the engineer shall not have it in his power to control the self-action of the valve. It does not mean that the valve is to be once put in order and then sealed up out of sight and placed out of the care of the engineer. In accordance with our interpretation, almost all merchant steamers have their safety-valves so arranged that they can all be eased and turned round on their seats, even when steam is up, but they cannot be in any way controlled in their action. In the Navy the form of safety-valve construction adopted is one valve-box for each boiler, that box containing two valves, of which only one can be lifted when under steam. The other valve is entirely shut up from the engineer, he can neither lift it nor turn it on its seat, and he cannot tell whether it is in working order or not. The lifting valve is not much better, he can only say that he can lift it by turning an $1\frac{1}{2}$ inch screw, but whether he is lifting a properly working valve or forcing an almost set fast valve by the screw power provided for him, he cannot tell. In the merchant service, each valve spindle has a sleeve cross handle, fitted by a sliding cotter with a long cotter-hole in the spindle. The cotter is fixed in the sleeve, and is just clear of the top of the spindle cotter-hole when the valve is shut. The cotter-hole extends one inch or more below the cotter, and the hollow of the sleeve extends as much above the point of the spindle, so that the valve cannot be held down by the sleeve, although it can either be lifted or turned round on its seat by the sleeve handle at any time. The merchant service requires these facilities of arrangement, for, hurrying into port and out of port, their engineers have seldom time to overhaul the closed-up parts of the machinery, and this safety-valve arrangement is one that can be tested in a few seconds at any time, either at sea or in harbour.

In this particular the Admiralty arrangement, at only a few shillings less expense on each valve, is equally efficient when in good order, but its state cannot be ascertained without some trouble, and only when not under steam. That no accident has occurred before this explosion of the *Thunderer* is an evidence of the excellent discipline and great care bestowed on the machinery of Her Majesty's fleet, and now that attention

has been drawn to this inferiority of arrangement if not positive defect, doubtless it will be rectified. A safety-valve ought to be an absolutely certain means of preventing any increase of pressure beyond the stipulated amount. The *Thunderer* has twin screws with two sets of engines and two stokeholes. In each stokehole there are four boilers, each with four furnaces and one funnel for the four boilers. It is the foremost boiler on the starboard side of the aft stokehole that has exploded. The pressure to which the safety-valves were loaded is said to have been thirty pounds. The top front plate of the boiler has been blown off, and the part of the inside up take attached to these plates has been forced back and distorted. A number of short stays from the uptake with double nuts on the boiler front have drawn the outer nuts bodily through the $\frac{1}{8}$ inch plate, testifying to the enormous pressure that must have been acting to produce such results.

The explosion occurred just as they were getting up steam for the runs; word had been passed down that they could go at what speed they liked, when the boiler burst. Captain Wilson, newly appointed to the *Thunderer*, was in the engine-room at the time, Mr. Humphreys, jun., one of the firm of the engineer contractors, was also below at the back of the port engine. Captain Wilson was saved by Mr. J. S. Weeks, one of the engineers; the captain had lost his way; all the lights had been extinguished by the first burst of the steam; he thought to lie down, thinking that would be safer, but he found the steam more suffocating as he stooped. He then stretched himself erect, and found a cooler stream of air there and then. Mr. Weeks came in contact with him just as he had taken the wrong turn towards the stokehole instead of towards the ladder to the deck. Mr. Weeks had shut off the steam, but the main stop-valves for the engines were till then still running, and he then, as the captain states it, dived right into it, down to the stokehole, where the firemen and trimmers were being steamed to death.

When the report of the explosion was heard in Portsmouth, it was at first thought the magazine had exploded, for the report was like that of a large gun. It was, however, known that she had no powder on board, and when the steam was seen in great clouds, all knew that a boiler had burst, and immediately every necessary assistance was despatched, in all sorts of boats, to the scene of the disaster. The country are treating the victims of this explosion as they would the first of the wounded in a great war. It is a sad defect, but if every defect uncovered by the shock of this explosion be rectified throughout the whole of our Navy, the disaster may prove a blessing to the country.

THE BRUSSELS EXHIBITION.

(By OUR SPECIAL CORRESPONDENT.)



THE International Exhibition of Hygienic and Life-Saving Apparatus at Brussels, which was opened on June 26th by the King of the Belgians, and will remain open till at least October 1st, contains much that will be interesting to nautical men. There are apparatus for securing proper ventilation of stoke-holes and other parts of vessels, electric indicators of fire in the hold, floating hospitals, &c. These are illustrated by plans and drawings; but more striking objects are the lifeboats exhibited by England, Amsterdam, and Bremen, the rocket-apparatus shown by the Board of Trade, the lighthouse charts of the British coast and of the Austrian coast (Trieste and the neighbourhood), which show the range, colour, and character of the lights employed. In lighthouses proper there is a full-sized dioptric apparatus constructed by Messrs. Chance, and lent by the Trinity House for the Exhibition, where it forms the most striking object in the British section as the afternoon sun glances upon its lenses. Russia shows that she too is a nautical country by contributing a fog-horn, and a boat which is a lifeboat with a difference. It is a sledge running on ice, but in the shape of a boat, so that in case of any accident it can be drawn rapidly over the ice and then launched in the water to save life. The Ministry of Marine also sends from St. Petersburg air-sacks for raising ships, the Makaroff leak-stoppers, lighthouse charts, models illustrating Dr. Müller's system of carrying the wounded on board ship. The Russian Sauvetage Society, which is under the protection of the Czarevna, sends maps of its stations upon the coast of Russia and the inland seas, and its apparatus for saving life, similar in character, but inferior in extent, to the exhibition by the English Board of Trade and Lifeboat Society. Denmark has a small but well-selected nautical exhibition. The Royal Marine Arsenal at Copenhagen contributes a hammock with a mattress which floats in case of shipwreck, and several alternative kinds of life-mattress to avoid the objections urged against some of these cork-stuffed sacks. The Lighthouse Administration sends a chart of the Danish lighthouses and more detailed descriptions of some of the lights which guard the entrance of the Baltic. There are several models of lifeboats, one of a cheap but hardly durable construction made like a coracle with two wicker-work frames, over which are stretched two canvas skins. The space between the skins is left filled with air, and thus buoyancy is obtained. Denmark like Italy sends a chart of the position of the marine hospitals for scrofulous diseases which are established round her coasts. The

Danish Meteorological Institute sends only its reports for 1878 and 1874. The Swedish collection is rendered most important by the inventions of Baron von Otter. It also contains a model of M. G. von Heidenstam's lighthouse, and a full description of the Swedish lights. Two charts of the Swedish coast, one showing how it was lighted in 1856, the other showing the advance made twenty years later (in the present year), afford material for an interesting comparison. There is a wreck chart; and the Swedish pilot, Magnus, of Gothenburg, exhibits an automatic arrangement for launching boats. The inventions of Baron von Otter are illustrated by instruments made by Mr. G. W. Syth, of Stockholm, and may be thus described. In connection with lighthouses, Baron von Otter has founded a promising system upon the principle of the group-flashing arrangement recently introduced in this country. He has one light with blinds which can shade it. The blinds are opened and shut by mechanism at certain intervals. The long interval represents a line, the short a dot. As soon as dashes and dots can be represented, the elements of the Morse alphabet are at hand. Combinations of dots and dashes represent all the letters of the alphabet. By means of this alphabet the lighthouse is enabled to spell its name, giving, for the sake of brevity, the consonants only. For two years the Royal Swedish Navy have been supplied by Baron von Otter with lamps which are alternately shaded and allowed to show, and which replace by long and short intervals of darkness the Morse dots and dashes. Explicit signals at night are thus given. The machine, which opens and closes the blinds, makes at the same time the Morse letters on a slip of paper, so that the signaller can observe and correct any mistake he has fallen into; and whether he corrects it or not, his error will be recorded. The last refinement has been to substitute in this checking part of the instrument type-writing (like that of the Hughes' telegraph machine, or the Remington writer) for the Morse symbols, so that the detection of a mistake may be still more obvious. The Morse system is also applied by Baron von Otter to fog-signals, whether sirens, whistles, or trumpets. All that is required is a long interval, and then a short one.

England, which is by no means foremost in some of the classes, notably those concerned with the extinguishing of fire, fortunately takes the lead in nautical matters at the Brussels Exhibition. The full-sized lifeboat on its carriage, with all its sails set, which forms so prominent an object in the British department, has excited all the interest which might have been expected from an object which nobody can fail to see and everyone can understand. Less popular models, but quite as important, for the purposes of saving life or avoiding the risk of losing it, are contributed by several Government departments and individuals. The dioptric apparatus

of the Caskets lighthouse, Alderney Island, exhibited by the Trinity House, has already been mentioned. A distinctive light is produced by a mechanical arrangement which produces groups of flashes with long intervals between the groups. On the Casket Rocks there are at present three towers showing three lights. The new arrangements will substitute one triple flashing light on one tower. The economy is obvious. The Trinity House also exhibits a model showing the manner in which the catoptric apparatus on board a lightship has been adapted for the exhibition of a group-flashing light. On a lightship it is impossible to adopt the heavy and elaborate lanterns which may be used for land batteries of light. The best which can be done is shown here. The apparatus and lantern enclosing it are made to move up and down the mast in order that they may be hoisted by night and lowered by day. There is a model and sectional drawing of the Wolf Rock lighthouse, nine miles S.W. of the Land's End on a rock which is covered two feet at high water. In 1861 the lighthouse was begun. On the 1st of January, 1870, the light was first exhibited. The design of the tower was furnished by the late Mr. James Walker, C.E., and the work executed by Mr. William Douglass, C.E., under the direction of Mr. James N. Douglass, C.E., the Engineer-in-Chief to the Trinity House. The tower is of granite, the facing stones being dovetailed vertically and horizontally. The inside blocks are bolted together and to the rock with strong bolts of galvanized steel and yellow metal. The total cost of the undertaking amounted to £62,726. The rock has deep water all round, and is exposed to the full force of the Atlantic Ocean, and the lighting of it is justly regarded as some cause for congratulation.

The recent investigations of Professor Tyndall on the subject of fog-signals, are not without illustration at Brussels. The siren, which, upon the Queen's visit to South Kensington, sang her rude song in the presence of Her Majesty, is represented at Brussels by drawings. The drawings show how at Souther Point the compressed air is carried from the engine-house to work the fog-signal trumpet. There are also drawings of the electric light station which seems to Channel passengers to have brought the South Foreland so much nearer to Dover, and similar drawings of the buildings and apparatus at Souther Point. The latter show how the rearward light from the electric lamp is reflected downwards, and sent out to sea as a lower fixed light twenty feet below the lamp.

The Lords of the Admiralty permitted the London Committee of the Exhibition to select a considerable number of models from the museum of the Royal Naval College at Greenwich. One exhibits the cellular system of constructing ships, with double bottom, water-tight bulk-heading, &c., to protect them from sinking when penetrated or damaged by collision, striking the ground, &c. Dr. Edmonds's ventilation plan is

shown by sections, which give the ventilation trunks on each side, for withdrawing foul air from the bilges and lower-decks, the holes for ventilating the bilges and the lower decks, the tubes for conveying the foul air from the trunks to the hollow iron mast, or to the funnel and its air-casing. There is a fire-proof ventilator for spirit-rooms, formed of metal bars; one set made to form acute angle edges, to overlap another set of bars with obtuse angles alternately, with sufficient space between the bars to form winding passages for air to pass round, but not in direct currents through them. Between the frames of metal bars two partitions of wire gauze are fitted, through which flame cannot pass.

There are several exemplifications of plans for stopping shot-holes and leaks in ships. One is to fix a hose over the hole, the upper end of the hose being carried above the water-line. In another model the conical wooden end of a plug is forced out through the hole; an iron spindle is then pulled back, leaving a sufficient portion of the bag part of the model outside, which will be pressed into the hole. In another leak-stopper a plug is forced out through the hole by working a screw; the plug is opened out like an umbrella, and is secured at the same time. Mr. John William Wood, of Harwich, shows his iron self-adjusting shot-hole, rivet-hole and leak-stopper, in which a broad disc of felt or felt-like material is readily screwed on one side of the hole, while a cross bar of iron, which adjusts itself, holds on the other side. This useful invention has already been more fully noticed in the *Nautical Magazine*. In the Admiralty collection are two anchors, Coryton's, and Wastenev Smith's. Admiral Sir Wm. Hall shows also his anchor in two halves, one half of which may be used as a light anchor for boats, or to avoid the danger common with anchors of the old construction of the ship, in a shallow anchorage, grounding on the upper fluke. But all these anchors yield in importance to Martin's patent self-canting anchor, one of which is exhibited, while there is also a model of the *Alexandra*, with her Martin's anchors on board, to show that the fire from the guns, which would be partly stopped by an ordinary anchor, is not interfered with. The anchors of the *Alexandra* weigh five tons each, and there are eight in all. As the ordinary anchor would weigh seven tons, here is a gain of sixteen tons in addition to the other advantages of the self-canting anchor. The Admiralty models include Mitchell's patent screw-moorings; a single wrought-iron capstan and cable-holder, with adjustable stops (Harfield's); Blake's fire-hearth cooking galley for ships; seamen's bag-rocks, and the method of securing the mess tables and the stools to them; Kynaston's boat-lowering hooks, and Gresham's patent record buoy, intended when a ship is in distress at sea, and there is no hope of rescue, to contain the ship's papers and letters giving an account of the situation, and to be

thrown overboard. It is said that when the sun is shining in the day-time on the ball-reflector, it can be seen a long way off.

Several of the objects exhibited are of historical interest. Thus, two models represent a temporary rudder formed by means of a hempen cable cased over with wood and hung by chain and rope guys attached to the back of the rudder, an arrangement by which the American packet *Warren* was steered for sixty-three days in 1852. There is a model of the Shields lifeboat, the first made in England, which was invented by Henry Greathead, boat builder of South Shields, in 1789, built at that port by subscription, and launched in 1790. The boat would not free herself from water nor right herself if upset. Next comes a very similar lifeboat, made by Mr. Fincham, master shipwright, in 1851. The lifeboat proposed by Commodore Lord John Hay in 1861, which had a self-righting power, is shown. With the Admiralty models may be compared several lifeboats exhibited by others. There is the lifeboat of the Royal National Institution, 33 ft. long, 8½ ft. wide, rowing ten oars, double banked, which possesses great lateral stability, re-discharges water breaking into it, and rights itself. Admiral Hall sends his lifeboat, as used by the Peninsular and Oriental Steam Company. Mr. Henry Thomas Richardson sends the tubular life boat invented by his father, stationed now at Rhyl, North Wales, and at New Brighton. Collapsible and other lifeboats are shown, and several kinds of life-rafts, including Mr. Parratt's. This is, in fact, a tubular lifeboat, with three keels. The central cylinder is composed of metals for the stowage of provisions, signals, and gear. The outside cylinders are made of cork shavings, cemented together with indiarubber, which, with patent outside cases, make buoyant and flexible outriggers, capable of sustaining the force of concussion against the side of a ship without injury. The main feature of the raft is the small place it occupies when folded up; it can be compressed into a deck-seat of 2½ or 3 ft. wide. When expanded, the raft has a beam of 9 or 12 ft., according to its length. In addition to the buoyancy of the three permanent cylinders or floats, considerable flotation power is obtained by the inflation of flexible bags within the sides of the raft, as well as by the inflation of flexible cylinders which complete the deck on either side of the metal cylinder. Attention has been devoted to the launching of the life-raft as rapidly as possible. The stretchers are divided and swing on central pivots. When, therefore, the weight of the raft is suspended from the davits, the folding stretchers are straightened, and remain fixed in that position by means of self-acting spring-locks as the raft falls on the water. The operation, therefore, of expanding the raft does not occupy many seconds, and in this condition it is claimed for the boat that it will keep above water as many persons as a boat of the same length would hold, with the

capacity of being inflated afterwards up to three times the buoyancy of the boat.

An interesting object in the Admiralty Exhibition is the seamen's bath, designed by the Duke of Edinburgh when in command of the *Galatea*. It is a canvas bath which can be fitted at sea or in harbour for use, in defiance of sharks. All that is necessary is to have eight screw-plates let into the deck close to a scupper, so that the discharge hose can be inserted in order to run the water overboard after use. Stanchions and canvas-bath can be made on board.

A considerable exhibition has been made by the Board of Trade. The models are shown which are used in the examination of masters and mates for certificate of competency. The International Code of Signals, as adopted by England, France, America, Denmark, Holland, Sweden, Russia, Greece, Italy, Austria, Germany, Spain, Portugal, Brazil, and Belgium is shown. There are complete sets and models of the rocket apparatus and a history of the subject.

The rocket apparatus has now superseded the mortar apparatus as a means of saving life on the coasts of the United Kingdom. Except that communication with the ship is effected by a rocket instead of a shot from a mortar, one apparatus is essentially the same as the other. The late Captain G. W. Manby, F.R.S. (born 1765, died 1854), was the inventor of the mortar apparatus, and therefore of the system of the rocket apparatus. The same idea had, however, previously occurred to Sergeant Bell, of the Royal Artillery, who, as early as 1791, devised a plan for throwing a rope on shore by means of a shell from a mortar on board the vessel in distress, or *vice versâ*, and similar experiments were made by a Frenchman, named La Fere. Manby, however, had not heard of these inventions, and his own was the first that was used. The idea occurred to him in February, 1807, when present at a shipwreck, and in February of the next year he saved seven persons from a wreck by throwing a line over it, with which a boat was hauled off. In the year after he saved several crews. The year after that (1810), the invention was brought before Parliament; again, in 1814, when forty-five mortar-stations were established; then again, in 1815, when a grant was made to Manby of £2,000, in addition to previous grants. Though the Government thus took the apparatus under its protection, and it was worked by the coastguard, it was not until 1855 that the management of it was placed under a Government Department. Before this, the Royal National Institution for Saving Life from Shipwreck (now called the Royal National Lifeboat Institution), and other local shipwreck societies, assisted and co-operated with the Government in establishing and supervising stations, but there was no central authority over all.

In the meantime rockets had been invented and used for carrying the line, and when the Government took the life-saving apparatus under its own entire control, in 1855, there was a large number both of rocket and mortar stations, at about half of which were both rockets and mortars. The superiority of the rocket apparatus was acknowledged, but experiments were made by Colonel Boxer to improve both means of communication.

The modifications made in the apparatus, and the instructions since 1857, have been comparatively slight, the essential features of both being unaltered. The apparatus and the method of working it may be thus shortly described. A rocket is fired, which carries a line over a ship, the crew haul on the rocket-line, and this brings an endless rope, called a whip, rove through a block with a tail attached to it, which they make fast to a mast or some other portion of the wreck high above the water. Those on shore then haul off to the ship a hawser attached to the whip, which is made fast to the mast, or other portion of the wreck about 18 in. above the whip. Those on shore then set the hawser up by means of a triangle and an anchor, haul it taut, and send off to the ship the sling life-buoy secured to the whip, and travelling along the hawser, to which it is suspended by a travelling block. When the buoy reaches the ship, one of the shipwrecked persons gets into it, and it is hauled back with its occupant. This process is repeated till as many as possible are saved. Sometimes not more than six minutes elapse between the firing of the rocket and the landing of the first man. On low coasts without rocks it is sometimes found better not to use the hawser, but the whip and sling life-buoy alone. When the vessel is close in shore the heaving-stick is used instead of a rocket. This, in outline, is the manner of using the apparatus, and it has not been changed since 1857. Some important improvements have, however, been made as to details, and some modifications and additions to suit particular places.

A recent simplification in the method of firing has also been made. Rockets used to be fired by a complicated lock, which struck a detonating fuze. They are now fired by an ordinary time fuze lit by a port fire. The troughs from which the rockets are fired have been modified by the removal of the lock, in the place of which there is an aperture only for the application of the port fire. Lights are one of the last inventions of the late Colonel Milward, R.E. They are used for illuminating the scene of a wreck, and burn about twenty or twenty-five minutes.

The material for the whip has recently been changed from Manilla to garden-grown Italian hemp (the same material as that used for rocket lines), which is not so liable to kink. The ends are joined by an iron swivel.

An improvement has also recently been made by coiling the whip in a

box divided in the middle, so that both halves may run evenly without getting twisted or fouled.

Some idea of the value of the apparatus, as a means of saving life, may be gathered from the following table :—

Year.		Number of Station.		Lives saved, including those saved by Lines from the Shore.		
1870	286	...	...	854
1871	283	...	...	208
1872	284	...	...	298
1873	288	...	...	715
1874	289	...	...	175
1875	287	...	...	355

Sets of the apparatus have been supplied to the Russian and Turkish Governments, who have established several stations in the Black Sea, and to the Governments of Spain, Denmark, Italy, &c. Among the British possessions abroad, where it is in use, may be mentioned Canada, Victoria, Queensland, the Cape of Good Hope, Gibraltar, and Heligoland, and it is about to be introduced into British India, South Australia, and Hong Kong.

The apparatus has sometimes failed to save life from the ignorance of those on board as to its use. In one case five men tied themselves to the rocket-line, and all were drowned except one. This has taken place even in cases of British ships wrecked, notwithstanding that all certificated officers are examined in its use; that every official log-book contains instructions on the subject (which are also widely distributed by means of handbills), and that directions to those on board are sent off by the whip and hawser in French and English. In order, however, to insure that every ship shall have these directions at hand at all times for reference, the Board of Trade have caused enamelled metal plates to be made and distributed gratis to all shipmasters who apply for them. The Board have instructed their surveyors to see that they are permanently affixed to some public and easily accessible portion of the ship. Her Majesty the Queen has commanded that one of them shall be fixed on board her royal yacht. The Board of Trade also exhibit its medals and rewards given for saving life at sea, such as were given, for instance, to the captain and officers of the *Windsor Castle*, passenger steamship, when by heroic exertions and great prudence the fire on board that vessel was safely subdued. There is the Albert medal instituted in 1866, silver medals given to foreigners who risk their lives in saving English subjects, and the Board of Trade ordinary medal in silver and bronze. In connection with the rule of the road at sea, the Board of Trade have sent the Order n Council. They also send the aids to

memory, or rhymes in English, French, Swedish, Danish, German, and Italian. The rhymes which have been translated into five languages, and have done much to spread a general knowledge of the main principles of the rules, were first composed in English by Mr. Thomas Gray, of the Board of Trade.

The National Life Boat Institution send, in addition to their lifeboat, a model of an improved fishing boat, divided into compartments. The large central compartment is covered in gales of wind and heavy sea with hatches and a water-tight canvas cover, so that the boat cannot be sunk by the waves breaking into it. The society sends its lifebuoy adopted in the lifeboats of the Institution, the cork life-belt used for its lifeboat crews, a drogue or drag used to check the boat's progress and keep the stern towards the sea in running for the land. The medals, plans of the houses, the diplomas of thanks, the instructions for restoring the apparently drowned, printed in several languages, the lifeboat regulations, the barometer instructions as recommended by the late Admiral Fitzroy, are among this interesting and useful collection. The French Lifeboat Institution, instead of repeating the exhibition of the English society, exhibits a trophy of the [rocket tubes, ropes, and other more portable objects used on the French coast for saving life. In these matters France willingly confesses to have borrowed from this country.

Several private exhibitors from England are represented in the Exhibition: The Gateshead testing chains, the Mc Iver launching quarter-ship for saving life at sea, Bischof's ship filters, Cohen, Jacob & Co.'s ship logs, Dunlop's pneumatic marine engine governor, for preventing "racing" in heavy seas, Forrest's bolts, Forster's jacket, Frost Bro's. lines, may be rapidly mentioned. Mr. Gade sends the life-saving trunk, an oblong box, which becomes in a few seconds (by the act of opening it) more than twice its size; and a lifeboat which, by a peculiar contrivance, is made self-righting. As compared with ordinary lifeboats it is claimed for this one that it occupies one-half their space and is about one-half their weight in proportion to their carrying capacity, and yet is quite as strong. and being square, or barge built, the inventor asserts that it would make better weather in a seaway than most other boats. They can be made of any size, the smallest being the traveller's trunks, by which individuals unaided can save themselves. Nautical men know how many of these inventions are brought forward—how few of them can be made practically useful. Such collections, however, as those at Brussels help to bring to the knowledge of those able to judge the deserving among the undeserving projects of inventors.

Admiral Sir W. Hall exhibits drawings of the Sailors' Homes, with which his name is identified; Mr. Nathaniel Holmes sends his well-

known signals; Mr. Julius Hall an apparatus for extinguishing fire on board. Hill and Clark's boat disengaging and lowering apparatus; Le Sneur's blue serge floating vest; Major Wethered's friction block; Messrs. Wihl's swimming-belts and bungs; Dr. Woolcott's curious model of a ship, with five hulls, for affording additional safety in case of fire or leakage, breaking down of propelling machinery, or running a-ground, and for preventing sea-sickness, must conclude this rapid selection from English private exhibitors.

Turning, for the purposes of the little space that can now be afforded, to the remaining foreign sections, we find a map of the Prussian canals, and of the lighting of the German coast, an album with descriptions and drawings of lighthouses, a detailed chart of the Königsberg shore (Baltic), an excellent model from Berlin of a swimming school, and models of fishing boats. The German Society for Saving Life at Wrecks sends from Bremen two fine lifeboats, of the Peaze and Francois system, and its other apparatus of rescue from wreck. H. G. Cordes, of Bremerhaven, sends his life-saving gear, successful already at exhibitions in Moscow, Vienna, and Paris. Hausen, of Kiel, submits a cork-jacket to the judgment of the Brussels juries. Scharrath, of Berlin, sends a plan of ventilation for ships at sea. Siemens and Halske, of Berlin, the electricians, contribute a dynamo-electric machine for lighthouse purposes. The Austrian department, in addition to a forge for use on board ship which does not produce sparks, and to other objects, some of which have been already mentioned, contains some bell-buoys (Konicky system and Amadi system). In the Belgian section there are charts, drawings of buoys, boats, lighthouses, and the Ostend Beach Refuge. Twenty-eight private exhibitors contend for prizes. Among the objects illustrated by plans is an apparatus for distilling water and rendering it drinkable, for which the advantage over other arrangements of the kind is claimed that the atmospheric air is combined with the water at the moment of condensation. The water thus obtained is said to be palatable, sparkling, and equal to that of the freshest springs. Among the Boulogne Humane Society's collection is a slipway for the Boulogne lifeboat and a Boyton costume mounted upon a dummy. The Ligurian Sauvetage Society of Genoa takes the lead in the Italian section. Among private exhibitors is a naval captain who proposes to extinguish fire at sea by the simple process of sinking the ship. This scheme obtained a medal at Naples in 1874. From Holland come two good lifeboats and a diver's dress; from Norway light and wreck charts, and four private inventions for signalling and similar purposes. We have now rapidly reviewed the Brussels collection so far as it relates to nautical matters, and have justified, we think, the statement with which we set out, that on these points it is not barren of interest.

RULES FOR THE GUIDANCE OF CAPTAINS IN CASES OF AVERAGE.



OUR Hamburg contemporary, the *Hansa*, in obedience to a wish of a number of its subscribers, has had some rules compiled on the practice in cases of average; the rules are mainly drawn from the German Commercial Code. The subject is treated in an easy conversational manner, commencing with the starting of the ship from the port of loading, and ending with her arrival at the port of destination, and treats of all the casualties that might occur in the interim. At the outset, as the first step, the captain is advised to ascertain whether the ship or freight, one or both, are insured. According to this, the question divides itself into two primary cases, viz.—1. When the ship is not insured, or when she is only insured against total loss. 2. When the ship is insured against all risks. About two-thirds of the pamphlet is devoted to treating the first-mentioned case, and the remainder to the treating of the second.

In respect of the first case cited, under the head of *Petty Average* is comprised the ordinary expenses of the voyages, as pilotage, anchorage, towage, lighthouse dues, &c. Under the head of *Particular Average* is included all damages which may occur to ship or cargo through the elements. To this may be added the costs of procuring money in consequence of a particular average. *General Average* is, shortly expressed, any act intentionally done by order of the captain in a common danger for the general safety. Under this head is included the hire of lighters, when the cargo is unloaded or reshipped; the stranding of ship to prevent its foundering (if the ship, after stranding, become an entire wreck, or if when brought to a port found not worth repairing, no division of average takes place; if the stranding is not intentionally done to save the cargo or ship, only the costs of getting her afloat, &c., belong to general average); the entering a port of distress to prevent a threatening common danger and all charges therein incurred; the repairs of rudder, masts, &c., broken on the voyage; all charges connected with the defence of a ship against an enemy; and all costs and charges connected with procuring money for general average during the voyage. Other rules and suggestions are given, but space excludes their appearance here. A careful reading of these rules, it is believed, would enable a captain to discriminate in every case between the different averages. Attention is called to the importance of the captain's declaration agreeing with his journal, so that damages which come properly under general average should be so taxed; and it is pointed out that it is not sufficient to simply record the state of wind and weather, and the fact of the damage

occurring, but that a minute record of the cause, nature, and extent of each damage, together with the time of its taking place, should be made.

Instructions are given as to entering a port of distress, and as to the various papers the captain is to be furnished with on leaving. After mentioning that he is to deliver his protest immediately on arrival, and request a survey by a competent person nominated by his consul, the line of conduct he is to follow in case the cargo has to be discharged, sold, or repass effected in packages, ship, &c., is traced, and the different averages under which the various damages come are pointed out.

The means the captain would have to resort to on arrival in the port of distress to obtain the funds necessary for repairs, &c., are then adverted to, following which is a description of a bill of bottomry, and a number of statutes of the German Commercial Code relating to the same.

On arrival of the ship at the port of destination the captain is instructed as to the way he should proceed as to discharging the bill, the different parties contributing to the amount in the following proportions:—(a.) The cargo according to invoice value at port of destination. (b.) The ship, in her damaged condition, should be least taxed, and the captain should specially watch over this. (c.) The freight according to manifest, or if the ship is in a port of distress and the cargo unladen, in proportion to the remainder of the voyage.

In the case of stranding or shipwreck, the captain has to take notice of all that passes, and all contracts, sales, &c., according to customs and laws of port of distress. All goods saved to be forwarded to port of destination, to be delivered to holders of each bill of lading, and for goods so forwarded the ship only gets a *pro rata* of the freight earned according to the distance. This is different in the case of goods destined to an English port, where freight is only paid if ship reaches port of destination. Finally, danger of shipping of seas are dealt with.

In the second of the cases cited at the outset—viz., when the ship is insured against all risks, the different rules preceding apply, with some additions, in the cases of survey, taxation of damages, and attestation of papers.

The person making the survey will report (1) on the damages; (2) on those which are attributable to previous voyage; (3) on those attributable to age, worm-eaten wood, and defects of building; (4) on cost of repairs; (5) on the cost of the damages belonging to previous voyages; (6) on the value of the old replaced material.

The following are taxed as particular average:—Fuel value; ship's anchor; damage to hull and masts of ship, in first year (after first year one-third deduction); repairs at sea; damage to copper or metal covering, in first voyage (in subsequent voyages, in first year, one-fifth deduc-

tion; in second year, two-fifths; in third year, three-fifths; in fourth year, four-fifths; beyond fourth, nothing; zinc or sheet-iron, the same deduction in first three years; afterwards, nothing).

Condemnation of a ship and sale of the same in a port of distress, on account of insurers, is only allowable under the following circumstances (1) on impossibility of repair of the damages which have occurred on the insured journey being proved; (2) on impossibility of sailing to some other port for repairs, or, according to Bremen terms; (3) when the estimated cost of repairs, which according to policy fall on insurers, reaches a minimum of 75 per cent.

In case of sale of ship, the captain should see that compass provisions &c., are not included in sale.

Finally, there is the case of bottomry, where, should the claims against the ship for wages of captain and crew, port dues, pilotage, &c., exceed the gross freight and value of ship, it is advisable to relinquish them to the creditors, when, after satisfaction of privileged claims, the balance will fall to the bill of bottomry creditors.

INSTRUCTIONS TO MEASURING SURVEYORS.—INTERNATIONAL TONNAGE.—The Board of Trade have forwarded for the information and guidance of officers concerned in the duties of measurement and registry of ships a copy of a recently-issued Order in Council, which extends to vessels of the Kingdom of Norway the advantages held out by the 60th section of "The Merchant Shipping Act, 1862." In consequence of the amount of deduction for propelling power being different in the two countries, option is granted by the enclosed order to the masters of steam ships of the Kingdom of Norway, whereby the said masters may elect to have the engine-room measured under the rules relating to British ships. When the engine-room is measured according to the British rules in such cases a "Certificate of British Tonnage" is to be granted, adopting thereon the gross tonnage as stated in the Norwegian Certificate of Registry, and deducting from the gross tonnage the allowance for engine-room under the British rules, and also the allowance on account of spaces occupied by seamen or apprentices, and appropriated to their use. A copy of the document furnished to the Norwegian master is to be sent to the Principal Surveyor for tonnage, with a note thereon of the measurement of engine-room and the amount of deduction under the Norwegian rules. The fees for measurements under the accompanying Order in Council are to be the same as for the measurement of British ships for the time being, but only for the spaces actually measured.—EDWARD STANHOPE, Secretary.—THOMAS GRAY, Assistant Secretary.—Board of Trade Circular, No. 59.—June, 1876.

MONTHLY ABSTRACT OF NAUTICAL NOTICES.

No.	PLACE.	SUBJECT.
148	FRANCE—North Coast—Cherbourg	Establishment of a Light on West Jetty.
149	FRANCE—North Coast—Honfleur	Alteration in Harbour Light.
150	CENTRAL AMERICA.—Fonseca Gulf—Port la Union	Establishment of a Light.
151	CENTRAL AMERICA—Sonsonate	Establishment of a Light.
152	ADRIATIC—Trieste Bay—Capo d'Istria	Establishment of a Light.
153	ADRIATIC—Cherso Island—Zaglaja Rock	Establishment of a Light.
154	ADRIATIC—Cherso Island—Gruizza Rock	Alteration in Light.
155	ADRIATIC—Cattaro Gulf—Meligna	Alteration in Light.
156	THE BELTS—Kiel Bay—Kalk Ground	Establishment of a Light-Vessel.
157	THE SOUND—Flint Channel—Stollen Bank	Establishment of a Light-Vessel.
158	THE SOUND—Flint Channel—Kalk Ground	Establishment of a Light-Vessel.
159	THE SOUND—Flint Channel—Lomma	Establishment of Harbour Lights.
160	AFRICA—East Coast—Mozambique Harbour	Intended Establishment of Lights.
161	AFRICA—East Coast—Chingani Harbour	Establishment of a Light.
162	ENGLAND—East Coast—Humber River—Kilnholme	Temporary Alteration in Lights.
163	ENGLAND—East Coast—Tees Bay—Coatham Pier	Establishment of a Light.
164	BLACK SEA—Dniestr Bay—Tsarigrad Mouth	Alteration in Light.
165	MALACCA STRAIT—Pulo-Pisang	Intended Establishment of Light.
166	SUMATRA—West Coast—Siberoot Strait	Discovery of a Sunken Reef.
167	IRELAND—East Coast—Burford, Kish, Codling, Ridge, and India Banks	Alterations in Buoyage.
168	NORTH SEA—North Hinder Light-Vessel	Alteration in Light.
169	IRELAND—South Coast—Cork Harbour—Roche Point	Intended Alteration in Light.
170	UNITED STATES—North Carolina—Currituck Beach	Establishment of a Light.
171	UNITED STATES—Pamlico Sound—Brant Island Shoal	Destruction of Lighthouse.
172	COCHIN CHINA—Ton-king Gulf—Hon-dau Island	Establishment of a Light.
173	ENGLAND—East Coast—Yarmouth—Hewett Channel	Alteration in Buoyage.
174	BALTIC ENTRANCE—Kiel Bay—Sonderborg Harbour	Alteration in Harbour Lights.
175	ENGLAND—South Coast—Plymouth—Cawsand Bay	Buoys marking Torpedo Ground.
176	AUSTRALIA—Queensland—Bustard Head	Alteration in Light.
177	AUSTRALIA—Inner Route to Torres Strait—Piper Islands	Establishment of a Light-Vessel.
178	CORAL SEA	Discovery of a Coral Reef.
179	BANKS STRAIT	Existence of Sunken Rocks.
180	TASMANIA—North East Coast—Eddystone Point	Intended Establishment of a Light.

MONTHLY ABSTRACT OF NAUTICAL NOTICES.—*Continued.*

No.	PLACE.	SUBJECT.
181	IRELAND—West Coast—Aran Island	Alteration in Light.
182	IRELAND—East Coast—Ballygerry Bay— Rosslare	Establishment of a Light at end of Breakwater.
183	BALTIC ENTRANCE—Drogden Channel—North Rose Shoal	Temporary Light.
184	NORTH SEA—Weser River—Lunglütjen and Brinkamahoff	Establishment of Lights.
185	NORWAY—Skudesnes Harbour	Alteration in Harbour Light.
186	NORWAY—Lofoten Islands—Skraaven and Svolvær	Alteration in Harbour Light.

NAUTICAL NOTICES.

148.—FRANCE.—*North Coast.*—*Cherbourg.*—A light is now exhibited at the head of the West jetty, Port de Cherbourg. The light is a *green* light, 15 feet above high water, and should be seen 2 miles.

149.—FRANCE.—*North Coast.*—*Honfleur.*—A new lighthouse is in course of construction at the head of the western mole at Honfleur, from which, when completed, a light will be exhibited. On the exhibition of the new light the light now exhibited on the eastern mole will be discontinued.

150.—CENTRAL AMERICA.—*Fonseca Gulf.*—*Port la Union.*—A harbour light is now exhibited from the Commandant's house at the inner part of the landing wharf at Port la Union. The light is a *fixed white* light, elevated 38 feet above the sea, and should be seen 8 miles.

151.—CENTRAL AMERICA.—*Sonsonate Roads.*—The light exhibited at Sonsonate, or Acajutla Roads, is now of three colours, viz. :—*Red* to the southward, and *green* to the northward, with a *white* sector between.

Note.—The direction to the best anchorage is in the sector of white light.

152.—ADRIATIC.—*Trieste Bay.*—*Capo d'Istria.*—A *fixed green* light is now exhibited from a lantern at the extremity of the Galere mole, Capo d'Istria. The light is elevated 17 feet above the sea, and should be seen 2 miles.

153.—ADRIATIC.—*Cherso Island.*—*Zaglava Rock.*—A light of the fifth order is now exhibited from a lighthouse recently erected on Zaglava rock near Point Pernata, west side of Cherso island. The light is a *fixed and flashing white* light, showing a flash *every minute and a half*.

154.—ADRIATIC.—*Cherso Island.*—*Gruizza Rock.*—The light on Gruizza rock is now a *fixed white* light varied by *red flashes every minute and a half*. It is elevated 56 feet above the sea, and should be seen 12 miles.

155.—ADRIATIC.—*Cattaro Gulf.*—*Meligna.*—The following alteration has been made in the light exhibited at the Lazzaretto, Meligna, viz. :—Two lights are now exhibited vertically, the lower light is elevated 21.

and the upper light 80 feet above the sea; they are visible through an arc of 124° , or between the bearings of N.E. $\frac{3}{4}$ E. and W. by N. $\frac{3}{4}$ N., and should be seen 4 miles.

156.—THE BELTS.—*Kiel Bay*.—*Kalk Ground*.—A light of the sixth order is now exhibited from the foremast of a light-vessel moored near the north point of Kalk ground, south side of entrance to Flensburg fiord. The light is a *fixed white* light elevated 26 feet above the sea, and should be seen 7 miles. The light-vessel has two masts, is painted red with the name *Kalkgrund* in white on the sides. She is moored in 10 fathoms, N. by E. 200 yards from the beacon on Kalk Ground shoal, with the following bearings, viz.:—Kekenæs, N. by E. $\frac{1}{2}$ E.; Keke Ness lighthouse, E. $\frac{3}{4}$ N.; Düppel mill, N.N.W. $\frac{1}{4}$ W. In thick or foggy weather a gong will be sounded.

Note.—Entering or leaving Flensburg fiord vessels should pass to the northward of the light-vessel. Pilots can be obtained from the light-vessel.

157.—THE SOUND.—*Flint Channel*.—*Siollen Bank*.—A light of the fourth order is now exhibited from a light vessel placed in the Flint channel, near Siollen bank. The light is a *fixed white* light, elevated 22 feet above the sea, and should be seen 8 miles. The vessel, painted red with the name *Siollen* in white on the sides, is moored about 1 mile eastward of the bank, and N.W. by N. distant 2 miles from Malmo lighthouse. Position, lat. $55^\circ 38' 20''$ N., long. $12^\circ 57' 20''$ E. In foggy weather a bell will be sounded *three* strokes in succession *every minute*. Pilots can be obtained from this light-vessel, a blue and white flag being hoisted when any are on board.

Note.—Siollen light and Malmo light in line bearing S.E. by S. leads clear of Saltholm ground and the Siollen bank.

158.—THE SOUND.—*Flint Channel*.—*Kalk Ground*.—A light is now exhibited from a light-vessel placed in the Flint channel, a quarter of a mile south-east of Kalk Ground. The light is a *fixed red* light, which should be seen 12 miles. The vessel is painted red, has one mast, and carries a red globe at the mast-head. Position, lat. $55^\circ 36' 30''$ N., long. $12^\circ 54' 20''$ E. In thick or foggy weather a bell will be sounded *two* strokes in succession *every minute*.

159.—THE SOUND.—*Flint Channel*.—*Lomma*.—Two *fixed green* harbour lights are now exhibited at Lomma, about 4 miles northward of Malmo. The lights bear from each other E. $\frac{1}{4}$ N. and W. $\frac{1}{4}$ S., distant 38 yards. The inner light is elevated 20 feet and the outer light 15 feet above the sea level.

Note.—The lights in line E. $\frac{1}{4}$ N. will lead towards the harbour.

160.—AFRICA.—*East Coast*.—*Mozambique Harbour*.—In a short time it is intended to exhibit the following lights at Mozambique Harbour, viz.:—St. George Island: A square tower has been erected, 85 feet high,

a little to the south of the flagstaff, from which it is intended to exhibit a *fixed white* light. St. Sebastian: A *fixed red* light will be exhibited at St. Sebastian, Mozambique Island, visible through an arc of 180 degrees. It should be seen 12 miles. Cabeceira: A *fixed white* light will be exhibited near the white house at Cabeceira, visible only in the direction of the southern channel. It should be seen about 15 miles.

161.—AFRICA.—*East Coast*.—*Chingani Harbour*.—A light is now exhibited on Chingani point, north part of Chuluwan island. The light is a *fixed red* light, visible between the bearings of S.S.E. and W. by N. $\frac{1}{4}$ N., elevated 86 feet above high water, and should be seen 12 miles. Position, $20^{\circ} 88' 10''$ S., long. $94^{\circ} 54'$ E.

Note.—This light bearing S.W. $\frac{1}{4}$ S. leads at present over the deepest part of the bar, but as the bar is shifting it is advisable to take a pilot.

162.—ENGLAND.—*East Coast*.—*Humber River*.—*Killingholme*.—The high lighthouse at Killingholme is about to be taken down, and a new lighthouse erected on the same site. During the period of reconstruction, *two temporary low lights* will be exhibited, which when in line with the old low lights will indicate the same line of direction as present lights.

163.—ENGLAND.—*East Coast*.—*Tees Bay*.—*Coatham Pier*.—A light of the sixth order is now exhibited from the outer end of Coatham pier, Tees bay. The light is a *fixed red* light, elevated 30 feet above high water.

164.—BLACK SEA.—*Dniestr Bay*.—*Tsarigrad Mouth*.—The following alteration has been made in the lights at the Tsarigrad mouth of the Dniestr river, viz.:—Instead of the *two fixed white* lights exhibited from yard-arms, one only is exhibited, elevated 47 feet above the ground, and should be seen 7 miles. The *fixed red* light is exhibited 23 feet above the ground, from a moveable beacon outside or seaward of the white light, and should be seen 5 miles.

Note.—The outer fixed red light will always be so placed that the two lights in line will mark the direction for entering the Tsarigrad mouth.

165.—MALACCA STRAIT.—*Pulo-Pisang*.—A lighthouse is in course of construction on Pulo-Pisang, Malacca strait, which is expected to be completed in about a year, when a light will be exhibited therefrom, visible when bearing from N.W. by W. $\frac{1}{2}$ W. through north and east to S.E. $\frac{1}{4}$ S.

166.—SUMATRA.—*West Coast*.—*Siberoet Strait*.—Information has been received of the existence of a reef in Siberoet strait, west side of Sumatra, over which the depth of water is variable, but over which the sea generally breaks. Position, lat. $0^{\circ} 45'$ S., long. $98^{\circ} 42'$ E.

167.—IRELAND.—*East Coast*.—*Burford, Kish, Codling, &c., Banks*.—With reference to Nautical Notice, No. 89 (May, 1876), on intended alterations and additions in the buoyage of the Burford, Kish, Codling, Ridge, and India banks, the alterations therein mentioned have been made, viz.:—Burford Bank: North buoy has been changed to a *conical*

buoy *chequered black and white*, with *staff and globe*. South buoy has been moved one cable to the westward, and moored in 4 fathoms, the *staff and globe* having been removed. Kish Bank: The Kish, Bray, and Codling banks will, in future, be considered as one danger. North or No. 1 Buoy: A *black conical* buoy with *staff and globe* marks the northern extremity of these banks; it is moored in 6 fathoms N.N.W. $\frac{1}{2}$ W., one cable from its former position. No. 2 Buoy: A *black can* buoy, with Bailey lighthouse N. by W. $\frac{1}{2}$ W., and Mapas obelisk N.W. by W., westerly. No. 3 Buoy: A *black can* buoy has been moored in 17 fathoms E. by S. $\frac{1}{2}$ S., 6 cables from the position of the buoy formerly marking the south end of the Kish bank, and which buoy has been removed. Mapas obelisk bears N.W. $\frac{3}{4}$ N. and Great Sugar-loaf W. by N. No. 4 buoy: A *black can* buoy has been moored in about 8 fathoms, with Great Sugar-loaf N.W. by W. $\frac{3}{4}$ W., and Wicklow head S.W. $\frac{1}{2}$ W., westerly. The black and white vertical striped buoy marking the east end of Codling bank has been removed. S.E. or No. 5 buoy: A *black conical* buoy has been moored on the south-eastern extremity of the Codling bank, with Great Sugar-loaf N.W. $\frac{1}{2}$ W., and Wicklow head S.W. by W. $\frac{1}{2}$ W., westerly. S.W. or No. 6 Buoy: A *conical* buoy, painted *black and white in vertical stripes*, is moored in about 20 fathoms, with Great Sugar-loaf N.W. $\frac{3}{4}$ W., and Wicklow head S.W. $\frac{1}{2}$ S. South Ridge and India Bank: These banks will in future be considered as one danger. Ridge North Buoy: A *conical* buoy, painted with *black and white horizontal bands* with *staff and globe*, is moored at the north end of the Ridge in about 8 fathoms, with Great Sugar-loaf N.W. by N., and Wicklow head lighthouse S.W. by W. $\frac{1}{2}$ W. India Bank South Buoy: The south end of the India bank is marked by a *conical* buoy, painted with *black and white horizontal bands*, with Great Sugar-loaf N.N.W. westerly, and Wicklow head lighthouse W. $\frac{3}{4}$ S.

168.—NORTH SEA.—*North Hinder Light-Vessel*.—With reference to Nautical Notice, No. 248 (November, 1875), on an intended alteration in the light exhibited from the North Hinder light-vessel, the alteration has been made, and a *flashing white* light, showing a *flash every eight or ten seconds*, is now exhibited; the motion of the vessel causing the irregularity of the intervals.

169.—IRELAND.—*South Coast*.—*Cork Harbour*.—*Roche Point*.—On the 1st September, 1876, the following alteration will be made in the light exhibited on Roche point, entrance to Cork harbour, viz.:—The red revolving light will be changed to an *intermittent white* light, showing *bright for fifteen seconds* and suddenly eclipsed for *five seconds*. Also, from the same date, a larger fog-bell will be substituted for the one at present in use, and it will be sounded at *intervals of thirty seconds*, or *twice in each minute*, instead of eight times in a minute as at present.

170.—UNITED STATES.—*North Carolina*.—*Currituck Beach*.—A light of the first order is now exhibited from a lighthouse erected on Currituck beach, Currituck sound. The light is a *fixed white* light, showing a *red flash every minute and a half*, elevated 157 feet above high water, and should be seen 18 miles. The lighthouse, 150 feet high, is built of red brick. Position, as given, lat. $36^{\circ} 21' 50''$ N., long. $75^{\circ} 49' 20''$ W.

171.—UNITED STATES.—*Pamlico Sound*.—*Brant Island Shoal*.—The lighthouse on Brant island shoal, southern part of Pamlico sound, was destroyed by fire on the 24th May last. The light is therefore temporarily discontinued.

172.—COCHIN CHINA.—*Ton-King Gulf*.—*Hon-dau Island*.—A light is now exhibited on Hon-dau (Dau-shon) island, south side of the entrance to Cua Cam river. The light is a *fixed white* light, visible over an arc of 240° or between the bearings of S. by E. $\frac{1}{2}$ E. and N.E.; it is elevated 164 feet above the sea, and should be seen 8 miles. Position, as given, lat. $20^{\circ} 40'$ N., long. $106^{\circ} 47'$ E.

173.—ENGLAND.—*East Coast*.—*Yarmouth*.—*Hewett Channel*.—With a view of facilitating the navigation of Hewett channel the following addition and alterations have been made in the buoyage thereof, viz.:—Scroby South Hook: A *can buoy chequered black and white* has been moored in 5 fathoms at low water spring tides, with the following marks and bearings:—South Town west mill, just northward of St. James's church, Yarmouth, N.N.W. $\frac{1}{4}$ W.; St. John's church, Lowestoft, in line with the west side of Pakefield church, S.W. $\frac{1}{4}$ S.; South Scroby buoy, S. by E. $\frac{1}{6}$ ths of a mile; South-east Corton buoy, S.W. $\frac{1}{4}$ S. $\frac{1}{6}$ ths of a mile. Scroby Hook buoy has been moved N. by W. half a mile, and now lies in $4\frac{1}{2}$ fathoms at low water, with Scroby South Hook buoy, S. by E. $\frac{1}{6}$ ths of a mile; North Corton buoy, N.W. by W. $3\frac{1}{2}$ cables. Scroby South Elbow buoy has been moved N. $\frac{1}{2}$ E. a quarter of a mile, and now lies in 9 fathoms at low water, with St. Nicholas light-vessel, S.S.W. $\frac{1}{4}$ W. $\frac{1}{6}$ ths of a mile; South-west Scroby buoy, N. by E. $\frac{1}{4}$ E. $\frac{1}{6}$ ths of a mile.

174.—BALTIC ENTRANCE.—*Kiel Bay*.—*Sonderborg Harbour*.—The following alteration has been made in the colour of the leading lights at Sonderborg, south entrance of Als sound. The two fixed green lights have been changed to *fixed red* lights. Also, the red light exhibited on the pontoon bridge has been changed to a *green* light.

175.—ENGLAND.—*South Coast*.—*Phymouth*.—*Cawsand Bay*.—Information has been received that the following buoys will be placed in the vicinity of Picklecombe fort, Cawsand bay, for the purpose of indicating the limits within which Torpedo practice will be made. Four buoys, painted *green and white in horizontal bands*:—1. Moored in a line with,

and half-way between Reading point and Queen's Grounds buoy. 2. Moored 750 yards West of Queen's Grounds buoy, in the direction of the Coast Guard station, Cawsand. 3. Moored 750 yards West of the second buoy, 1,500 yards from Queen's Grounds buoy, and S.S.W. from New rock. 4. Moored North of third buoy, and half-way between it and the shore. All these buoys are marked *Torpedo*.

Caution.—As these buoys are within the fairway of the western channel of Plymouth sound, mariners are warned not to pass within the space marked by them. Fishermen will incur danger to their nets and boats by anchoring between the said buoys and the shore.

176.—AUSTRALIA.—*Queensland*.—*Bustard Head*.—The following alteration has been made in the lights exhibited on Bustard head, viz.:—The two small leading lights heretofore exhibited to mark the position of the outer rock off Bustard head have been discontinued, and a near approach to the rock is now denoted by a light exhibited from a square tower, bearing S.E. by S., distant 500 yards from the Bustard head lighthouse, and elevated 280 feet above the level of high water. This light is of the fifth order, between the bearings of S. by E. $\frac{1}{4}$ E. and S.W. $\frac{1}{4}$ S., but it will also be seen as a natural light as far southward as the bearing S.W. by W. $\frac{1}{4}$ W., and also between the bearings of S.E. and E.S.E. This light is so screened as to be invisible between the bearings of S.S.W. and S. by E., to a distance of one mile outside the rock at high water.

Note.—Vessels when passing Bustard head, in order to clear the Outer rock, should keep this auxiliary light in sight until the ray of red light exhibited from the principal lighthouse is passed.

177.—AUSTRALIA.—*Inner route to Torres Strait*.—*Piper Islands*.—A light is now exhibited from a light-vessel moored at Piper islands, inner route to Torres strait. The light is elevated 85 feet above the sea, and should be seen 11 miles. The light-vessel is moored in 18 fathoms, with the following bearings, viz.:—North Piper island W. by S. $\frac{1}{4}$ S., and k islet N. $\frac{1}{4}$ E. These bearings place the light-vessel in lat. $12^{\circ} 14'$ S., long. $143^{\circ} 16' E.$

178.—CORAL SEA.—Captain Love, of the American barque *Malay*, reports having discovered a reef about 45 miles eastward of Flinders reefs. This reef (*Malay reef*), about a mile in circumference, is in lat. $17^{\circ} 58' S.$, long. $149^{\circ} 20' E.$ This position is considered correct, as a departure was taken from Herald cay the day previous to sighting the reef.

179.—BANKS STRAIT.—Information has been received from Staff Commander Henry Stanley, R.N., in charge of Admiralty Survey, of the existence of a rock lying off the north-east coast of Tasmania, and in the track of vessels. This danger (*Salamander rock*) has 10 feet on it at low water spring tides; it lies E. by S. $\frac{1}{4}$ S. $12\frac{1}{2}$ miles from Swan island

lighthouse, and N. $\frac{1}{2}$ E. $5\frac{1}{2}$ miles from George rock. These bearings and distances place the danger in lat. $40^{\circ} 49' 40''$ S., long. $148^{\circ} 21' 15''$ E. This is considered to be the rock on which the s.s. *Salamander* struck in 1869, although the position is about 2 miles southward of that reported by the *Salamander*. Also, of the existence of a sunken rock (*Harry rock*), having 18 feet on it at low water, lying N. W. by W. $\frac{1}{2}$ W. nearly 3 miles from Swan island lighthouse. Also, of the existence of a sunken rock at the west entrance of Franklin inlet (*Rockfort rock*), having 10 feet on it at low water, and lying N.E. $1\frac{1}{4}$ miles from Double rock, near Badger island

180.—TASMANIA.—*North-East Coast*.—*Eddystone Point*.—It is intended to erect a lighthouse on Eddystone point, Tasmania.

181.—IRELAND.—*West Coast*.—*Aran Island*.—A light is now exhibited from a temporary lighthouse erected 64 yards eastward of the lighthouse on Aran island during the alteration of the permanent light. The temporary light is a *revolving* light, at the same height above the sea as the permanent light. The *red* sector of light shows over the Stag rocks as before. The permanent light will be changed from a dioptric light of the second order to a dioptric light of the first order, and will show *red and white* flashes of equal intensity. Due notice will be given when this alteration has been effected.

182.—IRELAND.—*East Coast*.—*Ballygerry Bay*.—*Rosslare*.—A white light is now exhibited at the outer extremity of the breakwater works in progress at Rosslare, Ballygerry bay, Wexford, instead of a red light as previously advertised.

183.—BALTIC ENTRANCE.—*Drogden Channel*.—*North Rose Shoal*.—The erection of a lighthouse has been commenced on the North Rose shoal, Drogden Channel, and a *fixed white* light is exhibited about 6 feet above water from the boats employed in laying the foundation.

184.—NORTH SEA.—*Weser River*.—The following lights are now exhibited on the River Weser below Bremerhaven, viz.:—1. Langlütjen: A *fixed white* light on the provisional landing-pier of Fort Langlütjen, east side of Langlütjen sand. Position, lat. $58^{\circ} 32' 20''$ N., long. $8^{\circ} 29' 40''$ E. 2. Brinkamahoff: A *fixed white* light of the fifth order on the landing-pier near the battery of Brinkamahoff, now building. Position, lat. $58^{\circ} 31' 40''$ N., long. $8^{\circ} 34'$ E.

185.—NORWAY.—*Skudesnas*.—On the exhibition of the lights in the autumn, the following alteration will be made in the harbour light on Vigeholm, Skudesnæs harbour, viz.:—The light will be changed from a white light to a *red* light.

186.—NORWAY.—*Lofoten Islands*.—On the exhibition of the lights in the autumn, the harbour lights at Skraaven and Svolvær, Lofoten islands, will be changed from white lights to *red* lights.

HYDROGRAPHIC NOTICES PUBLISHED BY THE ADMIRALTY.

- No. 16.—Information relating to the south coast of Tierra del Fuego; Magellan strait and channels leading northwards therefrom, to the Gulf of Penas and west coast of South America with Galapayor islands. Derived from various sources.
- No. 17.—Information relating to Torres Strait. By Commander G. P. Heath, R.N., Portmaster at Brisbane, 1876.
- No. 18.—Information respecting Poverty bay and Ahuriri road, New Zealand. By Lieutenant W. H. G. Nowell, H.M. schooner *Sandfly*, 1875.
- Information respecting Hokianga river, Kaipara and Manukau harbours. From the remarks of Navigating Lieutenant H. S. Penn, R.N., H.M.S. *Sappho*, 1876.
- Directions, &c., for Otago harbour. By Captain Wm. Thompson, Harbour Master, 1876; and
- Information relating to Chatham islands. From United States Hydrographic Notice, 1875.
- No. 19.—Information relating to Nuevo gulf and Chupat river, east coast of South America. By Navigating Lieutenant C. R. Brout, H.M.S. *Volage*, 1876.

CHARTS, &c., Published by the Hydrographic Office, Admiralty, to the end of July, 1876, and sold by the Agent, J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill.

No.	Scale.		a.	d.
153	m = 5·0	Mediterranean, France:—Villa France, Nice and Ospizio	1	6
385	m = 2·0	South Africa:—Plettenburg Bay	1	6
710	Various	Spain, North Coast:—Comillas Anchorage, Port Castro, Urdiales and Aviles River	1	0
2323	m = 0·5	Mexico and Lower California:—Manzanilla Bay to Gulf of California (preliminary chart)	2	6
2324	m = 0·5	North America, west coast:—Cape San Lucas to San Diego Bay (preliminary chart)	2	6
2246	Various	California:—Anchorages in the gulf of West Indies:—Port Cayo Moa, Iragua, Yamaniguey, and Canete anchorages, Cuba	1	0
493	m = $\begin{Bmatrix} 2·8 \\ 1·4 \end{Bmatrix}$	England, East Coast:—Berwick harbour	1	0
113	m = 6·8			

OUR OFFICIAL LOG.

BOARD OF TRADE INQUIRIES.

Name of Vessel.	Port.	Nature of Casualty.	Judgment of Court.
<i>Accidental Star</i>	North Shields	Foundered	Master's certificate returned.
<i>Dunraven</i>	London ...	Stranded...	Master's certificate suspended for 12 months.
<i>Jane Young</i> ...	Androssan ...	Ditto ...	Master's certificate returned.
<i>Rollo</i>	London ...	Ditto ...	Master's certificate suspended for six months.
<i>Baby</i>	Dundee ...	Ditto ...	Master's certificate suspended for six months.
<i>South of England</i>	—	Ditto ...	Master's certificate returned.

QUARANTINE NOTICES.

BOARD OF TRADE, July 14.—The Board of Trade have received, through the Secretary of State for Foreign Affairs, a copy of a despatch from Her Majesty's Consul at Lisbon, enclosing copies of notices issued by the Portuguese Government, stating that the ports of Portuguese India are declared free from cholera morbus since April 10 last, and the port of Maceio, as well as the other ports of the province of Alagoas, free from yellow fever since May 26 last.

BOARD OF TRADE, June 16.—The Board of Trade have received, through the Secretary of State for Foreign Affairs, information to the effect that the Russian Government has issued an order requiring the bill of health of all vessels arriving at Russian ports from the southern shores of the Black Sea to be *viséd* by the Russian Consuls stationed on that coast.

BOARD OF TRADE, June 20.—The Board of Trade have received, through the Secretary of State for Foreign Affairs, information to the effect that henceforth vessels arriving at Odessa from Trebizonde, and the other ports of Turkey in Asia to the east of Trebizonde, are obliged to present the consular *visa* required by the quarantine regulations, in order to show a satisfactory sanitary condition of the vessel, and that it has just been proposed to extend the above measure to all the ports of the Black Sea.

ANNEXATION OF FINGOLAND, &c.—Downing Street, June 22.—The Queen has been graciously pleased to direct letters patent to be passed under the Great Seal for the annexation of certain territories known as Fingoland, the Idutywa Reserve, and Nomansland, to the Colony of Cape of Good Hope.

INTERNATIONAL CODE OF SIGNALS.—The Board of Trade have received a notice to the effect that the Portuguese Government have dispensed with the special flags heretofore used on board their ships of war, and have adopted the universal series exclusively for communication by the international code of signals.

CANCELLATION OF CERTIFICATE.—BOARD OF TRADE, June 20.—Thomas Bennett, second mate of the ship *Nariva*, of Glasgow, having been convicted of an offence, viz., larceny of cargo and drunkenness at Trinidad, the Board of Trade, acting in exercise of the powers conferred upon them by the Merchant Shipping Act, 1854, have cancelled the certificate of competency as second mate, No. 17,985, granted to the said Thomas Bennett.

INSPECTORS OF SHIPPING.—BOARD OF TRADE.—The following have been appointed Inspectors under the Merchant Shipping Act, 1875 :—Messrs. Edward Christian, South of Ireland District ; Henry D. Grey, South of England District ; William Broughton Pryce, Western Coast of Scotland District ; Robert Murray, Eastern Coast of Scotland District ; William Walter Kiddle, North of Ireland District ; Leighton Mills, North-East of England District ; Edwin Ramsey Moodie, Liverpool District ; William Heathcock Neate, South Wales District ; Charles Edwin Pryce, Hull District ; William Quiggin, Port of Sunderland ; Alfred Park Sandeman, Port of Middlesborough ; John Smyth, Port of Swansea ; Hugh Boag Watson, Port of North Shields.

CRIMPING IN THE THAMES.—The following notice has been sent by the Trinity House of London to the various river pilots in the Thames :—
“ Sir,—I am directed to acquaint you that the Board of Trade have for some time past been taking active measures for the suppression of crimping in the Port of London, and have for that purpose placed a steam yacht on the River Thames, with a suitable force of police under the superintendence of Commander Pitman, R.N., and the Elder Brethren being of opinion that it is in a pilot's power to render much assistance herein, I am instructed to request your co-operation in this matter by informing masters of ships when crimps are approaching, and explaining to them the efforts which are being made for the suppression of the evil.
—I am, Sir, your humble servant (Signed), ROBIN ALLEN, Secretary.”

REGULATIONS IN FORCE WITHIN MOORISH PORTS AND HARBOURS RESPECTING BALLAST.—1st. No ballast can be thrown overboard. 2nd. Upon arrival, captain to declare in writing to Consul what ballast he has, if for discharge, and whether he had thrown any overboard prior to said declaration. 3rd. Master has to apply through his Consul for instructions from port authorities as to discharge of ballast, and obey the same. 4th. For a false declaration made to a Consul respecting ballast the following fines are leviable :—Vessels under 50 tons, \$80; over 50 and under 100 tons, \$60; over 100 and under 250 tons, \$100; over 250 tons, \$200; to be doubled for a second infraction of regulations.—By order of the Moorish Government and concurrence of the Foreign Representatives at Tangier.

SHIP SURGEONS.—In accordance with directions recently issued by the Marine Department of the Board of Trade, all medical officers sailing in British ships in charge of passengers, emigrants, or crews, must be “registered medical practitioners.” The Government and the public, as well as shipowners, are becoming aware of the importance of securing skilled medical aid afloat; and, inasmuch as in this, as in other walks of professional life, the labourer is worthy of his hire, it is specially fit and proper that ship surgeons should be in all respects as fully qualified as those who practise on shore. No decent passenger ship now sails without a medical officer; and we observe that, about a month ago, in the Court of Common Pleas, an army officer sued for and obtained heavy damages from the owners of a steamship bound for England from Colombo, because a surgeon was advertised in connection with the ship, but eventually was not forthcoming. The passenger therefore declined, with others, to proceed in a ship without a doctor, and so brought this action. It appears, however, that even since the official circular respecting the registration of ship surgeons was issued by the Board of Trade, unregistered men have shipped.

INDIAN MERCANTILE MARINE EXAMINATIONS.—The following rules, for the appointment of a qualified Board for the examination of masters, mates, and engineers of the Mercantile Marine, have been published. The Examination Board, for conducting the examinations for granting certificates of competency to seamen, shall be constituted as follows :—The Senior officer of the Royal Navy present, for the time being, at the headquarters of the Marine Survey Department, shall be *ex-officio* examiner in navigation; provided that he be an officer of the navigating branch of the Royal Navy, and of not lower rank than a staff-lieutenant. The examiners in seamanship shall be three experienced masters who have been recently in successful command of merchant vessels. These may

be selected either from the commanders of vessels lying in the port of Calcutta, or from the surveyors of shipping in the port. They shall be appointed by the Lieutenant-Governor on the nomination of the Master-Attendant. The permanent President of the seamanship examiners shall be the Deputy Master-Attendant. Three engineers shall be appointed by the Lieutenant-Governor on the nomination of the Chief Engineer of the dockyard, as examiners in steam. These will usually be selected from the superintending engineers of the different steam companies in the port. The Chief Engineer of the dockyard shall be the permanent President of the engineer examiners. The examinations shall be held quarterly, on the first Monday of January, April, July, and October, or on the first open day thereafter, if the day fixed should be an authorised holiday. The examiners shall receive a fee of Rs. 82 for each examination.

BOARD OF TRADE, Marine Department, Whitehall Gardens, July 21, 1876.—The Board of Trade have received through the Secretary of State for Foreign Affairs, a copy of a despatch from Lieutenant Colonel Siborne, the British Commissioner on the Danube, containing the following information :—"The European Commission of the Danube having on the 9th of May, 1876, officially adopted the Danubian system of tonnage measurement recommended by the International Commission of Constantinople of 1873, and put in practice for the passage of the Suez Canal, which decision is to take effect from the 1st October, 1876, it is strongly recommended that English vessels trading to the Danube should be provided with 'Suez Canal Special Tonnage Certificates,' in order to avoid the delays to which they may be subjected by re-measurement at Sulina. This regulation does not however affect that of the 10th November, 1875, which prescribes that in case measurement has not been claimed by the captain of the vessel, nor enjoined by the Navigation Cash Office, vessels not provided with the above-mentioned certificates shall pay an additional tax of eleven per cent."

BOARD OF TRADE, WHITEHALL GARDENS, JUNE 20, 1876.—The Queen has been graciously pleased to confer the Albert Medal of the second class on Lieutenant Alfred Carpenter, R.N., of Her Majesty's ship *Challenger*. The following is an account of the services in respect of which the decoration has been conferred :—At 10.30 p.m., on the 31st of January, 1876, while the *Challenger* was at anchor in Stanley harbour, Falkland Islands, in five fathoms of water, distant a quarter of a mile from the shore, Thomas Bush, an able seaman, fell overboard from the steam pinnace, which was coming alongside, and sank without uttering a cry. The night was dark, the weather very

boisterous and raining, there was a short chopping sea (which rendered swimming extremely difficult), and an outsetting current. Lieutenant Carpenter, without a moment's hesitation, jumped from the gangway, and swam towards the spot where the man disappeared, which was some twenty feet from the ship, and touched him with his feet under water. He then dived, seized hold of Bush, and brought him to the surface, and supported him from three to five minutes; but Bush being a very heavy man, and encumbered with thick waterproof clothing, and, moreover, being quite insensible, Lieutenant Carpenter, as he got exhausted with his exertions, was obliged to let him slip down. He supported him with his legs for a few moments, and then they were both hauled into the pinnace, and taken on board the *Challenger*. When picked up they were between forty and fifty yards from the ship's stern, which distance they were drifted by the current and wind. Every effort was at once made by the medical officers to restore Bush, but without success. There were several patches of floating kelp round the ship, amongst which the strongest swimmer would be helpless, which materially increased the risk incurred. From the unusual and strange fact that the man was not seen from the time of his falling overboard until brought to the surface by Lieutenant Carpenter, no boat, but for his prompt action, could have attempted to save the man with any chance of success.

DECK LOADS.—The following is a translation of a protest made on the part of Sweden and Norway in reference to proposed legislation in regard to deck loads:—"Count Steenbock to the Earl of Derby.—London, June 16, 1876. M. le Comte,—In a despatch dated the 29th May last, Baron Hochschild brought to the knowledge of the King's Government the amendment proposed by Mr. Plimsoll, and adopted by the House of Commons, relative to a clause in the Merchant Shipping Bill brought in by Her Majesty's Government, which is of great importance to the Shipping of the kingdoms of Sweden and Norway. According to this amendment it will hereafter be illegal for any ship which leaves any port beyond the United Kingdom between the 1st of October and the 16th of March, for a port within the same kingdom, to carry cargoes of wood on the deck; whereas the proposal of the British Government is that the height of the cargo above the deck shall not exceed 3 feet. The definite adoption of the amendment would have the inevitable result of increasing the freight of timber cargoes during a great portion of the year, but this inconvenience, although considerable, ought naturally to be tolerated if the restriction imposed by the House of Commons is required in the interests of humanity. The Government of the King, after an examination of the question under

taken some years ago, and recently resumed, do not believe that there is any necessity for proceeding with such a rigorous measure. Sincerely interested in any reform of the navigation laws aimed at obtaining greater security for the crews, they believe that the best means for securing the object in view is to treat this delicate matter with circumspection, so as not to provoke a speedy reaction in opinion and legislation. The mere fact that a timber cargo is placed on the deck of a ship does not, in the opinion of competent persons, constitute a danger for the ship. It is only when the quantity of wood which is on the deck exceeds certain limits that the inconvenience arises. A load of a height equal to that of the "waterboard," or exceeding it only by a few inches, and composed, as is often the case, of three layers of planks, or of a single layer of beams, even offers certain advantages. When arranged in the above manner the load does not hinder the working of the ship, its weight makes the progress of the ship more even, and it leaves sufficient elevation for the bulwarks to protect the crew. If the sea is heavy and the deck flooded, the water runs off immediately between the planks, and the crew can go dry-shod. It is true that the right limit is difficult to fix, but the King's Government, knowing that Her Majesty's Government have carefully considered the circumstances before fixing the maximum of 3 feet, earnestly desire that Parliament should stop at that point, and that they trust that more mature consideration will cause the House of Commons to modify its decision. With this view the King's Government hope that Her Majesty's Government will use their influence to prevent deck loading being entirely prohibited by the House of Lords when the subject is considered by them. The importation of timber at seven of the principal ports of England during the year 1875 was carried on in 1,107 ships, of which 853 were Swedish and Norwegian. From the 1st of October, 1875, to the 1st of April, 1876, 41 Swedish ships arrived at London with cargoes of timber, 81 of which came directly from Sweden, and 10 from other countries; and during the same 268 Norwegian ships similarly laden with timber arrived in the port of London, namely, 120 direct from Norway, 86 from Sweden, and 62 from other countries. Your Excellency will be good enough to observe from these figures that the amendment adopted by the House of Commons affects almost exclusively the flags of Sweden and Norway. If this amendment were the result of a complete and profound examination of the question, the King's Government would not have made themselves the organ of the interests affected by its adoption, but not being able to allow that the measure proposed by Mr. Plimsoll is justified in this way, the Government of the King would be glad to think that Her Majesty's Government will kindly take into consideration the foregoing observations.—I have, &c. (Signed), STEENBOCK."

GENERAL.

A CRUISE ROUND THE WORLD.—No better appointed vessel ever left our shores than Mr. Brassey's schooner yacht *Sunbeam*, which stood away down Channel last week, for a cruise round the world. The *Sunbeam* is fitted with an auxiliary screw, and she is thoroughly found with every appliance that could be desired to render a vessel fit for so arduous a task. Some three hundred of our crack yachts will shortly be off Cowes and Ryde; but, as a rule, our leading yachtsmen seem very loth to lose sight of our white cliffs. Pottering about in the Channel is but lazy living, and we should like to see a few more of our yachtsmen follow Mr. Brassey's example.

THE LENNIE MUTINY.—It will be remembered that, at the trial of the murderers of the unfortunate officers of this ship, Mr. Justice Brett spoke in very high terms of the courageous conduct of the steward, Constant Van Hoydonck, and regretted he had no power to confer a personal decoration upon him. In consequence of these remarks by the learned Judge, it was resolved, at a recent meeting of the Chapter of the Order of St. John of Jerusalem, Lord Leigh (in the absence of the Duke of Manchester) presiding, to present Van Hoydonck with the silver medal, and the boy, Henri Trousselot, with the bronze medal of the Order. These medals will be forwarded to the respective recipients through the Netherlands and Belgian Ministers.

THE NORWEGIAN ATLANTIC EXPEDITION.—The expedition left Bergen, June 1, for the Sognefiord, where the first week we spent in preparatory work, sounding, dredging and trawling in 600 fathoms. The temperature at the bottom was found exactly the same as in former years, 48·7° F. The fauna was a mixture of Atlantic and Arctic. We found several specimens of *Brisinga Coronata* (Sars), *Munida tenuimana*, one large *Actinia*, and a sponge *Tisiphonia agariciformis*; and, among other mollusca, *Axinus eumyariis* (Sars), *Kelliella abyssicola* (Sars), *Malletia obtusa*, and *Taranis Mörschi*. The second week was spent at Husö, a small island at the mouth of the Sognefiord, where magnetical base-observations were made on shore and on board, ship swung for deviation, &c. June 20, the expedition left this place, and steered along the deep channel surrounding southern Norway, from the Skagerrack up to Cape Stadt. The first soundings and dredgings showed a very flat bottom, at a depth of about 200 fathoms, and with a fauna mainly Atlantic. About 150 miles N.W. of Cape Stadt, the

temperature began to fall, the depth remaining unchanged. At the next sounding, the depth increased, and the bottom temperature was still falling, until at last the Miller-Casella thermometer showed 32° at 300 fathoms, and 30° at the bottom in 400 fathoms. This is exactly like what the *Porcupine* found in the Lightning Channel. Off Stadt, the fauna was Arctic and glacial. Among the specimens brought up was a gigantic *Umbellularia*, five feet high, a *Nymphon*, ten inches between the ends of the feet, a new large *Archaster*, and many other characteristic forms. No less than eight forms of Hydroids were also found at this depth, three different species of Arctic *Fusus*, and several specimens of *Yoldia intermedia*. The expedition ran into Christiansund June 23, and was to leave that port in a few days for the Faroes and Iceland.

STEEL WIRE HAWSERS v. HEMP HAWSERS.—An important trial has recently taken place (by order of the Lords of the Admiralty) at Devonport Dockyard. It is the custom at the Government dockyards to keep in store 25-inch and other large sizes of hemp hawsers for use in cases of emergency, as in the instance of Her Majesty's ship *Agincourt* getting on shore, when these hawsers were sent out to assist in getting her off. In the finest weather, and under the most favourable circumstances, it is with the greatest difficulty these hawsers can be handled. Mr. Bullivant, therefore, obtained permission of the Lords of the Admiralty to test his 8-inch patent flexible steel wire hawser of equal strength against the 25-inch hemp hawser, as used in the service. The 120 fathoms of 8-inch steel wire hawser tested weighed 50 cwt., and was coiled on a reel, the outside measurement of which was 5 ft. square. The 25-inch hemp hawser was coiled in a tier 42 ft. long and 14 ft. wide, and the weight to 120 fathoms is 150 cwt. Each hawser had an eye spliced in the end ready for use. Twelve men were told off to work the 8-in. steel hawser, which they hauled off, ranged along the ground, with the greatest ease, and two men took two turns round a gun-post one foot in diameter, without any injury to the steel wire hawser. Forty-eight men were then told off to work the 25-in. hemp hawser, the eye and thimble of which were so large and heavy that it was found necessary to provide two large trucks in which to move them; trussels were also laid along, on which the hawser was hauled to a post 18 in. in diameter, round which one turn was taken with difficulty. A wish was expressed by Mr. Bullivant that the hawsers should be put in and laid out from a boat, as it would be necessary to do in case of requiring them to get a ship off the shore. This was, however, considered quite unnecessary, as it had been so clearly shown that twelve men could work the flexible steel wire hawser far easier than forty-eight men, assisted with trucks

and trussels, could work the 25-in. hemp hawser ; and it was also stated that [no ship in the service carries a boat in which the 25-in. hemp hawser could be coiled and paid out.

ANOTHER TRAINING SHIP FOR THE ROYAL NAVY.—The way to make seamen is not to mass boys in large numbers in a hulk moored fore-and-aft in a river, and stranded on the mud at low water. That will never make sailors out of land boys or landmen. What is wanted is, the sea-going training-ship or square-rigged tenders. It is of no importance whether boys, when in port, are kept in a barrack ashore or in a barrack moored stem-and-stern, or in the mud in a river, so long as they are a fair time afloat in a ship learning their practical duties. This is fully recognised in the Royal Navy, and the Admiralty have decided on adding another sailing training-ship to the existing number, and, in that view, have placed in the Medina Dock, Cowes, the sailing frigate *Eurydice*, for the purpose of having her completed and fitted out for training ordinary seamen. This fine old vessel was designed by the late Admiral Elliot, father of Admiral George Elliot, the present commander-in-chief at Portsmouth. She was a sixth-rate, and about 1000 tons. When re-fitted, she will be armed with six 64-pounder guns, and will have a full complement of officers and men. We must not allow this mention of the old *Eurydice* to pass without making mention of the old dock where she is now being re-fitted. It is always pleasant to remember old friends and supporters, and it is valuable to the public when the mention, as in this case, conveys useful information. The Medina Dock, at Cowes, where the *Eurydice* is being repaired and refitted, is the property of John White, an old friend and supporter of the *Nautical*. Our numerous private dockyards would, in the event of war, be of immense advantage to the Government of the country ; and for the docking and repairs of wooden ships, none stands out so prominently as the Medina Dock, at Cowes, being, as it is, almost within hail of Portsmouth. The *Ajar*, 64 guns, which was the first line-of-battle ship fitted with a screw, and the *Melville*, 74, which followed her, were both built in the Medina Dock, as have also been dispatch gun vessels, gun-boats, mortar-boats, lifeboats, pleasure yachts, and merchant vessels innumerable. We are glad of having an opportunity of mentioning these facts, as we are enabled thereby to answer a question often asked, viz. :—Where can repairs be well done to wooden ships, of various sizes, between Portland and the Thames ?

CAUTION TO EMIGRANTS TO BRAZIL.—As it appears that renewed efforts are being made to stimulate emigration to Brazil, the subjoined notice, originally issued in February, 1875, is now re-issued by direction

of the Secretary of State :—" Her Majesty's Government having been informed that another scheme is in progress for promoting emigration from the United Kingdom, the Emigration Commissioners have been directed by the Secretary of State to remind intending emigrants of the unhappy results that have attended previous schemes of emigration to that country. In 1872 and 1878 several parties of emigrants, amounting in the whole to about 1,000 souls, emigrated from the United Kingdom to Brazil under promises of being provided with land on favourable terms, and of assistance in its cultivation until they could support themselves, and in the expectation that they would be able to get their first crop at the end of six months. These promises and expectations were not fulfilled. The emigrants did not obtain their land, sickness broke out among them, many died, and those who were able to do so made their way down to the capital, in the hope of obtaining assistance from Her Majesty's Minister there. Since then some of the widows and children of the men who died have been sent home, some of the emigrants have been removed to other settlements, and Her Majesty's Minister is still engaged in endeavouring to obtain from the Government of Brazil assistance for those who remain. The accounts which these emigrants give of their present situation show that they have suffered great hardships and privations, and have been far from improving their condition by emigration to Brazil. The settlement which it is now proposed to form appears from the prospectus put out by the promoters to be situated on the high lands where the climate is healthy and soil fertile. But, on the other hand, it is remote from any market at which the settlers could sell their surplus produce, or procure the supplies they might require, the nearest town of any size, Curitiba, the capital of the province, being at the distance of 62 miles. A tramway will, it is said, be constructed between the settlement and Curitiba, but such works are unavoidably slow in a country where labour is scarce and expensive. The distance of the port being 114 miles, and the voyage from thence to Rio Janeiro by steamboat 40 hours more, the alleged market to be found at Rio for all produce may be put out of account. Emigrants should also remember that in going to Brazil they go to a country where the language, the laws, the religion, and the habits of the people will be strange to them; and although it is promised that a church and schools shall be hereafter provided, neither at present exists. It is very important that before making up their minds to emigrate to Brazil, emigrants should well consider these facts, and should understand that if they decide, notwithstanding this caution, to do so, they must accept the responsibility of the result."

TO OUR READERS.



WE desire to call the attention of our readers to a series of articles "On our Maritime Defences Considered, Combined with the Manning of our Merchant Ships" (the first of which appears in the present number), from the pen of Mr. W. E. Lindsay, who for very many years, as an extensive shipowner and member of Parliament, has taken an important part in all maritime questions, and whose practical knowledge of such matters has been very strikingly shown in his recent great work on the "History of Merchant Shipping and Ancient Commerce." Mr. Lindsay's capabilities do not need many words from us. The book to which we have referred has already taken its place in the literary world as the standard work on the subject, and there is no doubt that it will continue to hold that position in the far distant future. This fact, apart from Mr. Lindsay's active association with maritime matters, will, no doubt, be a great inducement to our readers to give that careful consideration to his articles which the importance of the subject and the writings of so great an authority deserve.

THE
NAUTICAL MAGAZINE.

VOLUME XLV.—No. IX.

SEPTEMBER, 1876.

OUR MARITIME DEFENCES CONSIDERED, COMBINED WITH
THE MANNING OF OUR MERCHANT SHIPS.

ARTICLE II.

WHEN discussing the question of our Naval Reserves we are invariably reminded of the great resources possessed by continental Nations in their trained seamen, as if those men could be marched on board their ships of war like so many machines whenever their services should be required; but James, in his *Naval History* (vol. 1, p. 58), states that though France, like ourselves, exercised the most rigorous powers of impressment, and had very large reserves of seamen "*bound to serve the State*," she was obliged, in 1792, when war was declared with England, to resort to various measures calculated to rouse the patriotism of her seafaring population, "and invigorate their efforts." With that object in view, we are told that violent invectives were cast upon the King and Government of this country, while enticing allurements were held out to the sailors in the shape of "prize money," augmentation of their pay, and bounties to their wives and children.

Although we have the advantage of our youths taking to seafaring pursuits with greater alacrity than those of any other nation, we must not forget that as they advance in years they require almost as many

inducements as Frenchmen to serve on board ships of war, and that they resist with even more determination attempts at impressment. Indeed, compulsory service is more difficult to enforce with British seamen than with those of any other country. Our institutions are opposed to it; and the spirit and dogged determination of our people, combined with the love of freedom, which has become part of their nature, would now render anything like the application of bodily force not merely futile, but dangerous.

More than a century ago this spirit asserted itself against the press-gang; and we should now have large masses of intelligent, and I might say, educated men, whose "trade unions" would amalgamate, and effectually resist, *compulsory* servitude.

We might appeal, and not in vain, to their patriotism, and with still more effect to their honour, where they had previously engaged for service when required: or we might more effectually do so when the war was popular, and especially if defensive; but though the law still upholds impressment, it would now be impossible to put it in force except in cases of extraordinary emergency; nor would it be desirable to do so.

Even when press-gangs existed as organised bodies, paid and upheld by the State, they produced the most mischievous results. While destroying almost every patriotic feeling in the seafaring portion of the population, they involved a stoppage of trade by placing an embargo on all outward-bound ships frequently to the ruin of our merchants. They were likewise very costly, and were the cause of so much bad feeling, misery, and distress, that at an early period of our history numerous schemes were propounded to obviate their necessity.

So far back as 1691, when our fleets, during peace, were manned, as at present, by volunteers, a plan was proposed* to meet an emergency, not unlike some of the schemes of our own time, whereby every boy whose parents received alms was to be indentured and bound at the age of fourteen to the King, and sent to Greenwich to be educated for the sea. All merchant vessels were to be obliged to take one apprentice to every six or ten men according to the trades in which they were engaged; and a proportion of these boys were to be sent on board the ships of war, while others were to be distributed to learn trades connected with the sea, such as carpenters, caulkers, and sailmakers, the masters being bound to employ a certain number of them.

About the same period, another scheme,† which was received with considerable favour, had for its object the raising of "20,000 men, which.

* "Naval Speculations and Maritime Politics," by Henry Maydman.

† "England's Glory; a Bridle on the French King," by Captain George St. Lo, R.N.

with the officers, would be sufficient for the fleet," by means of requiring all owners of vessels, lighters, and boats, and all master shipwrights and other tradesmen engaged in the construction and equipment of ships, to provide annually, under penalty, a certain number of men for the Navy, according to a graduated scale.

But it was not until 1696 that any Act of Parliament came into force having specially for its object * "the furnishing and supplying of His Majesty's Royal Navy with a competent number of able mariners and seamen which may be in readiness at all times for that service."

With the view of obviating the necessity of impressment, this Act contained provisions for the voluntary registration of seamen between the age of eighteen and fifty, to the number of 30,000, who were to be paid a retaining fee of £2 per annum to serve when required, and who, during their term of service, were to receive enhanced pay, a double share of prize money, and a home in Greenwich Hospital when disabled, or too old for active service.

These inducements, however, do not appear to have had the effect of raising the stipulated number of men.

The Navy then, as has too frequently been the case since, was not the favoured arm of the national service, and the ruling powers, including royalty itself, showed a marked preference for the Army.

Consequently, the number of men who entered for the Naval Reserve never exceeded 17,000, nor could much dependence be placed on even half that number mustering voluntarily on an emergency. Indeed, it is a matter of wonder that the Government was enabled to induce men to remain in the service, as it appears that Parliament had neglected to vote the funds necessary for their annual retainers, and had fallen far behind in the payment of the wages they had earned. By a return laid before the House of Commons, a sum amounting to no less than £1,036,415 was at one time due to the seamen of the Navy, the whole or greater portion of which was never paid to them. Such conduct on the part of the Crown and Parliament, combined with the bad usage they had to endure, and the wretched provisions and accommodation with which they were supplied, created an immense amount of discontent amongst the seamen of that period, and the severest discipline could not suppress the mutinies which too frequently arose. Numerous instances are recorded where men were hanged for desertion, and even for demanding their pay.† Open defiance of the law and its public ridicule were consequently matters of almost daily occurrence.‡

* William III., chap. 788.

† See Ralph's "History of England" during the reigns of William and Mary, Queen Anne, and George I.

‡ One of the handbills published by the seamen, and extensively circulated

Although the country was exasperated by the oppression to which the seamen were subjected, and the disorder which prevailed on board the vessels of the Royal Navy, no effective steps were taken by Parliament to remedy the existing state of things. Governments and statesmen acted very much as they pleased in those days; and the voice of the people was seldom heard except in the anguish of despair or in the tumult of revolt. The latter had, however, become so alarming that, in 1706, the House of Lords voted an address to the Queen, recommending an inquiry into the following points:—(1.) The effectual manning of the fleet; (2.) the encouragement and increase of the number of seamen and (3.) the restoring and preserving the discipline of the Navy. But in defiance of these recommendations, and although the Act of 1697 (it was repealed in 1710) had in many respects proved worse than worthless, thousands of seamen being in hiding, Queen Anne continued to hang seamen for demanding what had been promised by Parliament under pledge of her own royal word, and ignored the recommendation of the Lords.

In 1719, Mr. John Burchett—who was for half a century Secretary to the Admiralty, a man of humane feelings, combined with considerable shrewdness and a thorough knowledge of the wants of the service—recommended the establishment of registry offices, wherein seamen were to enter their names, age, address, and where serving. By such means, he said, “the Admiralty would be at all times aware where and how the men were employed.” But the more important object of his scheme seems to have been “that when a certain number of men have been employed a certain time in the service of the Crown they shall have license to enter themselves on board of merchant ships, and, when they have so served limited time, be obliged to go on board the ships of the Royal Navy where there shall be occasion for them.”

Nothing, however, came out of these sensible suggestions, and impressment, with all its evils, continued in full force at a cost to the country £800,000 per annum. Sir Robert Walpole, in 1740, brought in a Bill for the “General Registry of the Mariners of the Kingdom.” While insisting upon the necessity of this measure, he remarked, “After every means of impress had been used until not another man could be got, the haunts of seamen having been searched, the impress was suspended and protection granted in order that the trading ships might go to sea. This soon made it apparent that there was no want of sailors in

called upon “all seamen that are weary of their lives and desire to serve His Majesty (Royal William) on board the Navy Royal shall have for encouragement the following promises and no performance as follows:—For each able seaman, 2*l*s. per month to be paid when he can get it, and to be hanged if he demands it.”

nation ; they turned out by thousands—16,000 demanded protection for the colonies and coasters alone."

But his proposal for general registration, resembling in some respects the system then and now in vogue with the French, was not favourably received by Parliament, while the popular cry against it became so strong that he was obliged to withdraw the Bill.

In 1749, however, Lord Barrington, a member of the Board of Admiralty, under Mr. Pelham's administration, re-introduced this measure with certain modifications, wherein he proposed to raise a reserve of 10,000 men by a retaining fee of £10 per annum to each able seaman who held himself ready to serve in the Royal Navy when required.

But though a resolution to that effect passed the House of Commons after a long debate, it was never embodied in any Act of Parliament, no doubt from the fact of its too expensive character. In the meantime, one of the recommendations of George II. on his accession to the throne in 1726, which, however, did not become law until 1747 (20 Geo. II., chap. 38), had a material effect in encouraging seamen, if not to enter the Navy, to remain in the country. By this Act merchant seamen were, for the first time, required to subscribe 6d. per month out of their wages to what was long known as the "Greenwich Fund," towards the support of their aged and infirm. With all its failings, the Greenwich Fund, so long as it was honestly conducted, gave them what they never had before, and what now the merchant seamen in the Reserve alone have—"a stake in the hedge," a pension in old age, which induced them to stay at home.

Nine years afterwards the training-ship of the Marine Society was established through the influence and patriotism of Mr. Jonas Hanway, a merchant of the city of London, and an ornament to the age in which he lived. It was the first of its kind, and has been maintained ever since, proving of great value to the Merchant Service and Royal Navy.

Various fresh proposals were made about this period to render impressment unnecessary, as the press-gang had now become, not merely an ineffective and expensive means of obtaining seamen, but an intolerable nuisance to almost every class of the community, an evil, increasing and interfering as the people became more and more intelligent, and in itself practically worse than worthless, for I believe that at no period of our history were the men annually impressed greater than the whole number of men engaged in the various press-gangs.

In 1770, the Lord Mayor of London formally represented to the Admiralty that the tradesmen of the city could not go about their lawful callings without being interrupted and insulted by press-gangs ; and in the same year the seamen themselves presented a most urgent petition to the

King* in which they supplicate his "Majesty's interposition to prevent the unpolitic and abominable practice." †

In 1774, Lieutenant Tomlinson proposed a scheme for rendering impressment unnecessary, which attracted considerable attention. He suggested that every seaman entering the Navy voluntarily, should be allowed leave of absence, while on pay, for ten days to visit his friends before joining his ship, with the expenses of his journey, but making it felony for him to desert after receiving this bounty. Able seamen, by his plan, would not be bound to serve more than three years, and ordinary seamen not more than four years, the former receiving 30s. and the latter 24s. per month while in the service of the State. Landsmen were to be paid 22s. per month, their term of service being for five years. Having completed their servitude, they were to be supplied with certificates protecting them from impressment. He proposed, however, that the whole seafaring population should be obliged to serve, if required, in the Royal Navy, receiving a pension, when fifty years of age, from Greenwich Hospital if they had fulfilled their engagements.

This scheme was brought under notice of the House of Commons on the 11th March, 1777, but, after full debate, the resolution in its favour was rejected. In that year another scheme was suggested, not unlike the existing measure for our Naval Reserve, whereby seamen were to be voluntarily enrolled in time of peace for service during war, and when "not in actual service in King's ships might be permitted to serve on board merchantmen" in cases where the length of service did not exceed six months. Twenty thousand men were to be thus enrolled, each of whom was to receive an annual retaining fee of £5, with £1 on enrolment. But this scheme, also, failed to meet the approval of the then Government.

In 1798, when Pitt, still finding that all schemes, and especially impressment, had signally failed to obtain the number of seamen necessary for the emergency of war, introduced his famous "*Quota Bill*," whereby all seaports and parishes were required "to furnish seamen and landsmen in proportion to their extent for His Majesty's service." The Bill was passed, but so many vagabonds‡—frequently

* "Gentleman's Magazine," September, 1770.

† The celebrated novelist, Captain Marryat, wrote an energetic and exhaustive pamphlet condemning the system of impressment, of which he had seen the evils in the early part of his naval career. It received considerable attention at the time, but it drew on him the displeasure of our Sailor King, William IV., who, in consequence, refused to bestow on Captain Marryat the order of C.B., to which he was entitled by War Service.

‡ Amongst the numerous instances recorded in the public journals of the period, mention is made of one James Thompson, who, having been *capitally* convicted at the Old Bailey for felony and piracy, was respited on condition that he served

the sweepings of our gaols—were thus introduced into our Navy, that various writers of the period were of opinion that the scheme was in a great measure the cause of the mutiny at the Nore, which subsequently brought so much disgrace upon the British fleet.

But impressment continued ;* and although it has not been put in force since the close of the last French war, the law has never been repealed.†

In a paper, "Remarks on Manning the Navy," presented by Lord Nelson to Earl St. Vincent on the 18thth February, 1803, he estimated

in the Navy so long as his services were there required! And Captain E. P. Brenton, in his "Naval History," remarks:—"The seamen who voluntarily entered in 1793, and had fought some of the most glorious of our battles, received but *five pounds* bounty, and these brave fellows saw men, the very refuse and outcasts of society, flying from justice and the vengeance of the laws, come on board with a bounty of *seventy pounds*, for such enormous sums were the merchants obliged to pay for their quota men before the ships were allowed to sail."

* Forty-five press-gang stations were in full operation at the commencement of the great naval war, having an average of 20 men engaged at each station, to which must be added the guardships and tenders. In confirmation of the depraved class of men thus obtained, Admiral Eiken, in his "Naval Battles," states:—"The ships, on the breaking out of the war in 1803, were worse manned than ever. The *Donegal* and *Belleisle* went out to the Mediterranean with not more than 20 men each that could take the wheel, and from that time to the conclusion of the war in 1815 there were few exceptions to the inefficient and miserable state of the ships' crews.

"The *Princess Royal*, in the Channel Fleet, was obliged to take 60 convicts, and still remained 70 short of her complement, yet in three months time the captain considered his crew very fair, compared with the general state of the fleet at that time.

"In 1804, 50 convicts were sent in one draft to the *Bellona*. The *Canada* received 60 Spaniards from the prison ships in one day, and a 74 left Plymouth 80 short of complement, the port admiral declaring he had not a single man to give her."

† An old friend of mine—a very distinguished Statesman, who has kindly glanced over the proof-sheets of this article, remarks: "There is no law enacting impressment; this is stated in the Encyclopædia Britannica article 'Impressment,' and I well remember reading a case of resisting and killing one of the ruffians of a press-gang where the Court decided that such killing was not murder, as the acts of the press-gang had no sanction of law."

Anxious to be strictly accurate in all my statements, I addressed the Secretary to the Marine Department of the Board of Trade on this point, and with his usual courtesy and promptitude, he replies: "The operation of the press-gang is this; in the time of danger, Her Majesty, by proclamation, has power to command the services of all her people, or any particular class, or any section of any particular class, and when the class or section whose services are commanded do not come forward, they are *seised and sent* on board. This is called the press-gang system. If you look at the Report of the Royal Commission on Manning the Navy, 1859, (of which, by the way, you were a member) pages 20 and 21, you will there see the law distinctly stated. I also enclose copies of the sections of the Acts 5 & 6,

the expense of raising seamen at that time to be £20 per head, remarking that no fewer than 42,000 men had deserted during the late war.* Convinced that "the high wages of the merchant service and seduction of the crimps" were then the chief causes of desertion from the Navy, as crimps and high wages ashore are now great causes of desertion from merchant ships, his Lordship recommended "that every seaman who had served five years in war, and could produce a certificate of good conduct, should receive two guineas annually; and, after eight years, four guineas, exclusive of pension for wounds, &c." But the expense

William IV., chap. 24, and 16 & 17 Victoria, chap. 69, which will show you that the compulsory service of men taken against their will may be for 5 years or longer in emergency. I may, however, add that when required to serve for more than 5 years, the latter Act provides that they "shall for such extension of service be entitled to such bounty as may be given by such proclamation."

To make quite certain, the above statement was submitted to the Registrar of the Admiralty division of the High Court of Justice, who remarks: "You have correctly stated the Law on the subject of impressment. Its legality is undoubted. It is part of the common law of the land."

Further, referring to the "Law relating to the Officers of the Navy," by Harris Prendergast, Esq., Barrister-at-Law, part i., p. 88, I find, "The power of impressment for manning the Navy by the King's Commissioners has been a matter of much dispute; but it has been uniformly supported by a series of precedents from so early a date that the learned Mr. Justice Foster has thence concluded it to be a part of the common law of the realm. It is clear that the statute expressly confers this power on the Crown, though many statutes recognise or imply its existence. Thus the statute 2, Richard II., chap. 4, speaks of mariners being arrested and retained for the King's services as of a thing well known and practised without dispute, and provides a remedy against their running away. The numerous statutes also which have been passed for exempting particular classes of mariners from impressment most evidently imply the legal existence of such a right in the Crown; "for it is hard" (says Mr. Justice Foster) "to conceive that the Legislature should frequently mention a practice utterly illegal, and repugnant to the principles of the Constitution, as subsisting without some mark of disapprobation."

"Magna Charta" (says the same learned Judge) "hath been expressly and by name confirmed by many Acts of Parliament; my Lord Coke saith, 32. 'And yet the practice of pressing mariners still continued through all ages, and was never, that I know of, once mentioned in any of those Acts as illegal or a violation of the great charter.'"

"The legality of pressing," continues Mr. Prendergast, "in time of war, is now (1852), however, so thoroughly established, that Courts of Justice do not ever permit it to be doubted."

* From the beginning of May, 1803 (when hostilities broke out), to the end of June, 1805, the losses by desertion amounted to 9,565 able and ordinary seamen, and 2,735 landsmen. In addition to which 3,017 were invalided, thus occasioning a loss by these means alone of 15,317 men, although all our great seaports and their environs were guarded by detachments of marines and soldiers, who rigidly searched every vehicle that passed in order to prevent the seamen from deserting.

then, as now, had no doubt material weight with the Government, for I do not find that his recommendations were carried into effect.

In the course of the debate in May, 1805, on the Earl of Darnley's motion on the state of the Navy, a suggestion was made by Lord Melville whereby men might be procured for the Royal Navy without resorting to impressment "*in a manner equally beneficial to the interests of the Mercantile and Military services, and whereby the two SERVICES WOULD BECOME MORE UNITED.*" But his most valuable suggestion was not acted upon. Nor was the proposal of Lord Collingwood to materially increase the number of boys in the Navy, "in order that they might be trained up for our future seamen." Further proposals subsequently made for the general registration of seamen and obtaining them by ballot, and for first educating in the Merchant Service seamen for the Navy, so as in a measure to assimilate the two services, met a similar fate. Consequently, we have ever since found considerable difficulty in manning our fleet when any emergency arose.

In 1816 the guard and harbour ships on our coasts had to be stripped of their crews to provide seamen for the small fleet destined for Algiers. In 1826, Mr. Canning found so much difficulty in manning a somewhat similar expedition for the Tagus, that he considered it necessary to threaten to put in force the law of impressment; and in 1832, when we blockaded the Texel, we had almost as much trouble to raise even 1,000 seamen for the few extra ships we then required to commission.

Although in 1834 the first step was taken by *Government* to obtain a *personal* registration of all British seamen, it was not until 1844 that an Act* passed, requiring every seaman to be thus registered, and to have a distinguishing number attached to his name. But the system, and more especially the registration "tickets" required by this Act, became so obnoxious, and led to so much deception and fraud, that their issue had to be abolished.

In 1852-8, renewed efforts were made by legislation to establish, in peace, a practicable scheme of Reserves on which we could depend in the event of war; but these, as I shall hereafter endeavour to show, have fallen far short of our expectations. In 1858 the continuous service system† was introduced into the Navy, and training-ships were then

* 7 & 8 Vict., chap. 112, introduced by the late Lord Herbert of Lea, then Mr. Sidney Herbert, in his capacity as Secretary of the Admiralty.

† Prior to the year 1858 the practice during peace was to enter volunteers for particular ships, nominally for five years, but practically for the period during which the ship remained in commission, averaging from three to four years. This system was attended with great inconvenience to the public service, and even to the men themselves. Having trained these men, at great trouble and expense, to a high state of efficiency, they were suddenly dismissed; and unless they were

established, solely at the expense of Government, to keep up the supply, and thus maintain what was first known as a "Standing Navy." In the following year the Act* came into operation for forming the Royal Navy Coast Volunteer Force, under which 8,000 men were enlisted, consisting chiefly of questionable seamen, fishermen, and "long-shore men," including bargemen, wherry-men, and such like.†

These are the only preliminary steps we had taken, although then actually menaced with the Russian war, so soon afterwards declared, and for which, so far as regards men, we were altogether unprepared.

We now enter upon a period when, as a member of the House of Commons taking a part, however feeble, in all maritime questions, these matters came within my own experience.

I had then made the acquaintance of Admiral Sir Charles Napier, which subsequently ripened into friendship. With all his peculiarities, I could not fail to appreciate his high sense of patriotism, his thorough knowledge of his duties, and his indomitable courage; and when, as I conceived, unjustifiable attacks were made upon him in Parliament, by men high in office, after he had been recalled from the command of the Baltic fleet, I readily rendered him such assistance as lay in my power. Although I had previously declined to attend the foolish dinner which was given to him at the Reform Club, feeling that such displays were unbecoming on the eve of a great war, I gladly accepted his invitation to visit, at Portsmouth, the fleet he was to command; and I must say that I never saw such a lamentable and disheartening muster under the name of British "seamen." I could not believe it possible that this great maritime country could have produced such a squalid lot of "aquatics." Of the fishermen and "long-shore men" something might be made; but how Sir Charles was to convert the class of landmen then collected on board nearly all the ships of his fleet into sailors, and train them to action, struck me so much, that I remember I remarked to myself, "the

enabled to obtain re-admission to the service, they too frequently sought, and readily found, employment under a foreign flag. A continuous service system, established in 1853, gave to all men who entered, from the age of eighteen, for service in any of Her Majesty's ships, for a term of ten years, increased pay of from 1d. to 3d. per day, according to their rating; and men re-entering for five years' further continuous and general service, were to have a further increase of from 2d. to 3d. per day; and, on completing the fifteen years' term of service, were to receive a pension of from 7d. to 9d. a day, provided they had not been out of the service for more than twelve months. After twenty years' continuous and general service, they were to be granted pensions of from 10d. to 1s. 2d. a day, provided they had not been out of the service more than a total period of five years.

* 16 & 17 Vict., chap. 73.

† The number in the force has now (1876) dwindled down to 600 or 800 half-trained seamen, fishermen, &c., &c.

Lord have mercy on the British fleet should we again have the world in arms against us.”*

Happily we did not on that occasion encounter even Russia in any real action at sea. Had we done so, my fears might have been realised, ship for ship, unless the Russian crews were no better than our own.

However, when the war closed in May, 1855, I was equally astonished at the *wholesale* discharge from our service of men who had then really become good seamen. I thought, and still think, however much I may be opposed to large standing armaments, that we might then, and at a small expense to the country, have retained those of the skilled seamen and gunners who were ready and willing to form a reserve. We, however, did not do so, but indiscriminately discharged our best men, greatly to their annoyance and not to our gain, although, happily, no war has intervened. But we have had since then rumours of war, more especially in 1858 and 1861, and again in 1870, when we found it necessary or desirable to supplement our reduced peace force,* and to enlist very inferior men at a greatly enhanced cost, and had we unfortunately been involved in another war, we should have been in no better position than we were in 1854. Certainly, those of our continuous service men, who in 1856 were disposed to remain in the service, should at least have been retained, if for no other purpose than to form a nucleus for our Reserves, which to a greater or less extent we must always maintain.

The difficulties of obtaining seamen in 1858 led, in the following year, to the appointment of a Royal Commission “On Manning the Navy,” and to the proceedings of that Commission, of which I was a member, and its results I shall now refer.

W. S. LINDSAY.

(*To be continued.*)

* The *Algiers*, a 91-gun ship, had 350 men sent to her at Sheerness in one draft, not one of whom had ever been at sea before. Another line-of-battle ship sailed from England for the Baltic with only *eight* able seamen out of a crew of 850 men! I may add that to satisfy the men serving at the time in the fleet, it was found necessary to grant half bounty to them all.

† In 1858, when war was suddenly declared between France and Austria, and when we found it expedient to considerably strengthen our fleet, we required to pay a bounty of £10 to able and £6 to ordinary seamen to enlist from the Merchant Service into the Navy, and even then only obtained 3,000, while the bounty caused great dissatisfaction to the seamen already employed in our ships of war.

THE MERCHANT SHIPPING ACT, 1876.

THIS Act is the *alpha* and *omega* of the session, the first important Act brought in, and last important Act passed out. It has many good features and many bad. Some of its clauses will remain on the Statute Book for a century, while others are, we think, doomed to oblivion almost before any attempt can be made to work them. We hope to be able, in a series of short and useful articles, to lay before our readers a few remarks on the various points in the Act: and, in the meantime, we would ask them to refer to a special edition* just published, containing an introduction and voluminous notes to the various clauses. This edition will be especially valuable to members of the legal profession, and to shipowners and masters, who, being above the ordinary level of their class, take an interest in the legislation by which they are governed.

It is impossible for anyone who knows anything of the intricacies of the subject of Mercantile Marine legislation to withhold admiration from the minister who has been charged with the conduct of this Bill through Parliament. His difficulties were very great, but by his devotion to the subject, by a sacrifice of time, and a marked control of temper, he has worked bravely through. Thrown over by his colleagues on more than one occasion after standing up for a clause, he always rallied; and such has been his desire to give himself to the work that he never showed even disappointment in cases when men less devoted would have withdrawn from the contest. To have carried through the most important Bill of the session is an honour that must be deeply coveted.

The clause we are about to refer to in the present article is that relating to Courts of scientific reference.

Our readers know that we have for years been of opinion that it would be to the advantage of the country if all compulsory surveys could be done away with; but we have also stated that if they are to continue, they must be real and effective, and not shams. It would, we think, have been a great point gained, if the Legislature could have abolished the surveys altogether; but as they could not do that in the present state of public opinion, the Government and the Legislature together have done the next best thing. The Government have published a book containing the instructions issued from time to time for the guidance of their surveyors, which, we believe, in spite of the opinions of certain

* The Merchant Shipping Act, of 1876, with an Introduction and copious Notes, by Courtenay P. Ilbert, Barrister-at-Law. Dedicated to the Right Honourable Sir C. B. Adderley, K.C.M.G., M.P. London: Simpkin, Marshall & Co., J. D. Potter, Kent & Co., Pewtress & Co.

engineers of the Clyde, contains, in a consolidated and useful form, the result of the very highest engineering experience of the time. Based as these instructions are on the views of Sir William Fairbairn, and other equally competent men, they give the public good assurance that steamships which possess the Board of Trade certificate are really surveyed, and, as far as a survey can so make them, are really safe. The Government have wisely and fearlessly published these instructions in so many ways, that any member of the public can possess himself of them. If the instructions are wrong in any points, the engineering talent of the day will, in concert with the Government, strive to put them right, for the Government and the engineering talent of the day have but one object in view. Seeing that uniformity of practice must, as the Clyde engineers point out very forcibly, be attained, so that a boiler passed by the surveyors of one district shall not be rejected on a subsequent survey in another district; and seeing, as the Clyde engineers are careful not to point out, that the only way to ensure uniformity of practice is for all the surveyors to act on one complete set of rules, and in the same spirit everywhere, we are satisfied that the engineering talent, both inside and outside the Board of Trade, will see the necessity for ensuring perfection in the rules. For anyone to suppose that the "army of surveyors" acting under the Board of Trade should be left without rules, and each surveyor left to pass or reject what he pleases, and that uniformity of action would be the result, is in our opinion so utterly absurd that we regard with admiration those who profess to believe it. In order that the instructions shall be right and the action of the surveyors reasonable, the Legislature have this year strengthened the hands of the Government by providing for a court of scientific referees. These scientific referees are from time to time to be appointed by a Secretary of State, and if in any case the Board of Trade are of opinion that an appeal under the Act involves a question of construction, or design, or of scientific difficulty, or important principle, they may refer the matter to one or more of those referees who may appear to possess the special qualification necessary for the particular case. But the Board of Trade have power not only to do this if they think it necessary, but also if an "appellant" wishes it, and has the courage of his opinions so far as to give security for costs. This is a two-fold good, for if a point is once settled by a court of scientific referees, neither shipbuilder, engine-maker, or surveyor will be in doubt thereafter; and it will elevate the whole procedure of the Government survey system into a very solemn and important part of State duty. The survey of a ship or her engines by a Board of Trade Surveyor, and a certificate issued by the Board of Trade, will become of far more importance than ever, and will be placed far above anything of the sort done by a registry society, from whose

doings there is no appeal, and on whose doings no scientific referees can place their high *imprimatur*. Crotchets on the part of surveyors will be exterminated, and cavillings and insinuations that the Government action is wrong, or their advisers ignorant and stupid, can be put to the test. There will in future be no grounds for the false insinuations that the Board of Trade check improvement in machinery, as persons who make such insinuations henceforth will be little regarded by the public unless they have the courage at least to attempt to make out their case before a properly constituted court.

Another step in the right direction has also been made, by which the great shipbuilding and engineering firms of this country will have a larger field than ever to test inventions, which they may regard as steps towards mechanical perfection; for in addition to the whole of the steamships of the Mercantile Marine that do not carry passengers, they will now be able in addition to experiment on such of them as do not carry more than twelve. They have all along had an opportunity of trying experiments on those steamships which do not carry passengers, and which are therefore not subject to the Board of Trade instructions, or caprice. as it is sometimes called, and now they have in addition such steamers as carry twelve passengers. This being the case, we have no doubt that trials afloat, for which there is such great scope without practising on ships coming within the Board of Trade surveyor's notice, will always precede the adoption of novelties in passenger steamers, and also precede a reference to the scientific court. We do not, therefore, look forward to very great litigation; and further, there is no reason to believe that the very numerous staff of engineers and iron shipwrights in the pay of the Board of Trade throughout the country will not keep the Department fully posted, nor that the engineer-in-chief and his staff, or the chief shipwrights for iron and wood and their staffs, will be behind the age.

Altogether, the clause providing for scientific reference is one of the best clauses in the Act. Our only fear is that it may be said of the clause, "Let those who have objections to make now make them, or for ever after hold their peace;" and, whether they hold their peace or not, the clause may in the end, by guarding, protecting, and perfecting. tend to perpetuate the system of compulsory surveys and certificates, a system we regard as wrong in principle *ab initio*.

The provisions for appeals, in cases of overloading, unseaworthiness, and refusal to grant declarations, we intend to notice next month.

THE PORT OF ANTWERP.

THE port of Antwerp, from its commanding situation upon the Scheldt, the outlet for one of the most populous and industrious communities in Europe, connected with England by a short sea voyage, and possessing an historic interest inferior to no other city in the world, has held, from the remotest times, a position of great commercial and maritime importance. It would seem that amongst the earliest inhabitants of Germanic origin in Belgium, the Morini and Menapii, were engaged in navigation, and were accounted excellent seamen. These hardy mariners extended their excursions, in their rudely-constructed barks, along the whole seaboard, crossed the Channel, and for some time carried on an active trade with Britain. The nature of the trade existing is not distinctly stated, but some of the tribes established in Belgium are known to have excelled in the manufacture of woollen and other fabrics, and to have produced a good deal of wheat and salt. The British Isles, on the other hand, were abundantly supplied with peltry and wool, and were celebrated for their mines of lead and tin. It may hence be inferred that the interchange of these commodities, or of some of them, formed the basis of the earliest commercial intercourse between the two countries. It is believed that in the ninth century the inhabitants of the Low Countries carried on a profitable traffic with Scotland, whence they imported salt fish. And the existence of an intercourse between Flanders and England is proved by the fact, that in the year 956 the eminent prelate, St. Dunstan, left the shores of Britain for the purpose of seeking shelter on Flemish territory; the ancient chronicler who records the circumstance stating further, that during the reign of King Edgar, the Flemings, Saxons, and Danes effected frequent landings on the coast of England, to the great detriment of the natives, "who acquired bloodthirstiness from the Saxons, luxurious tastes from the Flemings, and habits of intemperance from the Danes—vices previously unknown to them."

The foreign trade of the Low Countries became, in the thirteenth and fourteenth centuries, beyond doubt very extensive. An extremely interesting document, published by M. Warnkonig, in his "History of Flanders," shows that more than thirty kingdoms and states of the Old World had established commercial relations with Belgium. England, Scotland, and Ireland exported wool, hides, lead, tin, coal, cheese, and tallow; in exchange they obtained woollen cloths and wine from Flanders. Denmark supplied horses; Russia, furs and wax; Bohemia, Hungary, and Poland, ingots of gold and silver; Spain, oil, dried fruits, skins, silk, iron, and quicksilver; Germany, Rhenish wines, wheat,

steel, and iron ; Italy, fabrics of silk and velvet, cloth of gold, jewellery, and valuable arms ; Fez and Tunis, furs ; Morocco, raw sugars ; Atlas, dates ; Egypt, Palestine, and Armenia, spices. The intercourse between England and Flanders was daily growing in importance, and that the prosperity of the latter depended much upon the maintenance of an intimate and cordial alliance with England was unquestionable. So strongly, indeed was this necessity recognised, that, after the death of Louis de Nevers, who fell in the French ranks at the battle of Crecy in 1346, the "Communes" gave his son, Louis de Male, to understand that the interests of the country required him to marry Isabella, daughter of Edward III., who had offered her hand, instead of the Princess Marguerite of Brabant, to whom he was betrothed, urging that England alone was in a condition to furnish wool, without which the commerce and shipping of Flanders were condemned to ruin, and the people exposed to die of hunger. And there is much evidence to show that the leaning towards France, and consequent hostility to England, which influenced the policy of several of the Counts of Flanders of the Burgundian line in the fourteenth and fifteenth centuries, contrary to the true interests and sentiments of their subjects, tended materially to hasten the downfall of the mercantile and industrial preponderance which Flanders had attained at that time.

Commerce, gradually dwindling away at l'Ecluse and Bruges, did not desert the shores of the Low Countries. "Antwerp," says M. Van Bruyssel, "was increasing, whilst the Flemish towns, ruined by war, ground down by imposts, were valiantly struggling against their fatal destiny. It was to that city that merchants of all nations, abandoning their ancient haunts, were about to transport their wealth, and with it civilization and the arts." The visit of King Edward III. of England on the 22nd of July, 1338, forms a remarkable episode in the history of the town at that time, and is well worthy of note, on account of its bearing upon the interests of England. The King proceeded, shortly after his arrival, to Coblenz, for the purpose of meeting the Emperor Henry VIII. of Germany, who conferred upon him (Edward) the title of Vicar of the Empire, and where he organised, in conjunction with the German Princes, a league against France. The fairs held at Antwerp contributed much also to the progress of navigation and industry, and the facilities which they offered for the transaction of business attracted merchants from all parts of Europe, to whom special safe-conducts were freely granted by the Dukes of Brabant. These fairs took place twice a year—at Pentecost and at the Festival of St. Bavin—at which periods Antwerp presented, during the space of six weeks, an aspect of extraordinary animation, only equalled in the present day by that witnessed at the fairs of Leipsic and Nijni-Novogorod.

The mercantile transactions of Antwerp at this period, namely, from about the year 1487 to 1570, extended to all parts of the known world. Merchants of all nations—among whom might be particularly noticed large numbers of Germans, Danes, Italians, and English—thronged the streets leading to the port. Their opulence conferred upon the city the distinguishing title of “Antwerpia Dives.” This remarkable position in relation to other cities is mentioned by Morley, in his account of “The Rise of the Dutch Republic,” in the following terms:—“The chief city of the Netherlands,” he writes, “the commercial capital of the world, was Antwerp. In the north and east of Europe, the Hanseatic League had withered with the revolution of commerce. At the south, the splendid marble channels through which the overland India trade had been conducted from the Mediterranean by a few stately cities, were now dry; the great aqueducts ruinous and deserted. Verona, Venice, Morenburg, Augsburg, Bruges, were sinking; but Antwerp, with its deep and convenient river, stretching its arm to the ocean, caught the golden prize as it fell from its sister cities’ grasp. . . . No city, except Paris, surpassed it in population; none approached it in commercial splendour. . . . The city itself was one of the most beautiful in Europe. Placed upon a plain along the banks of Scheldt, shaped like a bent bow, with the river for its string, it enclosed within its walls some of the most splendid edifices in Christendom. The world-renowned Church of Notre Dame; the stately Exchange, where 5,000 merchants daily congregated, prototype of all similar establishments throughout the world; the capacious mole and port, where 2,500 vessels were often seen at once, and where 500 made their daily entrance or departure, were all establishments which it would have been difficult to rival in any other part of the world.”

The able and instructive reports by Consul Grattan further relate how the withering influence of Spain destroyed the commercial grandeur of Antwerp; and the contrast in its condition becomes painfully apparent from the description given by the Duke of Saxony, who visited the town in 1618, and was struck with its deserted aspect. “Large ships,” he says, “no longer frequent the port, but only vessels of the smallest sort, and even these are few in number. Commerce is almost entirely annihilated. Instead of crowds of busy merchants, only a few Spaniards are to be seen strutting through the streets (*se pavanent dans les rues*),” a description of the place fully confirmed by other travellers at that period. It was reserved in more recent times for the genius of the Great Napoleon to carry forward with vigour the maritime constructions planned during the French Republic; and at his visit to this city, in 1803, vast projects were formed for the construction of the port. Before the entry of the French, Antwerp possessed no docks, properly

so called. A few quays existed, as well as some of the canals, which in ancient times had served for the accommodation of shipping; but there was so little water at the base of the quays and in the canals that they were only fit to be employed by small vessels. The only place, therefore, where large ships could discharge was at the mole called the "Worf," and they were obliged to remain at anchor in the Scheldt. These limited facilities, so inferior to those existing in some English and Dutch ports, where docks supplied with sluices had already been constructed, were quite inadequate to satisfy the requirements of the First Consul, who intended to convert the leading port of Belgium into a great naval arsenal. The construction of two large docks, fitted for the reception of a fleet, was therefore at once decided upon, and their site fixed at the northern extremity of the town. The Quai Jordacus, the first work of the French period, was completed in 1804, the adjoining Quai Van Dyck in 1805. The first and lesser of the two basins was begun in 1807, and admitted the first ship of war about the middle of the year 1810; and in 1813 a portion of the fleet entered the larger dock, the construction of which had been commenced in 1808. Then was laid the foundation of the commercial prosperity destined once more to revisit this ancient emporium of commerce.

The subsequent independence of Belgium has been coincident with the growth and prosperity of Antwerp, and in no branch of natural wealth has a more marked advance been visible than in its commerce. To such an extent has the trade increased of late years, that this port is fast assuming a place amongst the chief commercial cities of the world, a progress with which British interests and shipping are intimately associated. Taking the average of the last few years, very nearly 60 per cent. of the entire tonnage visiting the port annually is British, and the value of the merchandise imported from and exported to the United Kingdom vastly exceeds that received or sent to any other country by sea. The most striking feature of the comparative statement of the trade in 1861, 1866, and 1871, furnished by Consul Grattan, consists in the enormous increase, not only of the aggregate amount of the imports and exports, but also of the commercial relations between the port and Great Britain during this period. Under the twenty-one articles of imports thus enumerated, the general trade rose from about 280,000,000 kilog, in 1861, to 370,000,000 in 1866, and in 1871 to 750,000,000. The part of Great Britain, which in 1861 was under 50,000,000 kilog, had doubled in five years, and quintupled at the end of the decennial period. It is worthy of remark, that this augmentation turns chief upon raw materials intended for the use of the manufacturing district of Belgium. The imports of metals in general, and especially of iron in the unmanufactured state, have materially increased, whereas those in

manufactured form show a comparatively slight augmentation, and, in some articles, even a falling off, which circumstance may be accounted for in the following manner:—The Belgian workmen, with wages considerable lower than those prevailing in England, are improving in skill and intelligence, whilst in Great Britain the disturbed state of the labour market, resulting from frequent strikes, tends to discourage home industry, and proportionately to foster the growth of manufactures abroad. In the article of English coal, the imports had increased more than five-fold in ten years. This is chiefly owing to the preference given to the British article for the production of gas and for the use of steamers. Wool and hides may be classed amongst the staple articles of this market. Important facilities are offered for the sale of wool by the periodical auctions held, great credit being due to the Antwerp merchants who established branches of their firms in the River Plate ports, and thereby insured a steady supply of South American wool directly from the growers. Salt displays a more remarkable increase than any other article, a result, no doubt, mainly to be attributed to the repeal of the import duty, which has brought about an enormous consumption of this product for agriculture and other uses. During the last twenty years there has been a marked and rapid increase in the export of the agricultural and horticultural productions, the liberal commercial policy of England, combined with the facilities of transport, afforded by the various lines of steamers gradually established, having opened the British markets to the produce of the well-cultivated farms and numerous market-gardens of the country.

The total number of vessels entering the port during the year 1875 amounted to 4,267, with a tonnage of 2,146,797 tons, of which number 2,247, with a tonnage of 1,807,747 were British. The population, which in 1833 was 78,044, had increased in 1868 to 96,943, and in 1878 to 153,655, and including the suburbs of Berchem and Borgherout, may now be estimated at 200,000 persons.

THE RUSSIAN NAVY.—The Russian Cabinet is zealously employed in strengthening and reinforcing their Naval force in the Black Sea, hoping on the first favourable opportunity to regain that freedom of action which Russia lost by the Treaty of Paris. A second circular ironclad, the *Popowka*, has just been finished in Nikolajev, and is said to be a formidable vessel. From her immense size, measuring 120 feet across the circumference every way, she looks more like a floating tower than a ship, but is, nevertheless, a swift vessel, making from 11 to 12 knots an hour.

MERCHANT SHIPPING ACT, 1876.

(89 & 40 VICT., CAP. 80.)

AN ACT TO AMEND THE MERCHANT SHIPPING ACTS.

[NOTE.—Clauses 19, 20, 24, 35, 38, and 44 were bodily added in the Lords. The words added to the other clauses in the Lords are printed in italics.]

[15th August, 1876.]

BE it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons in this present Parliament assembled, and by the authority of the same as follows:—

PRELIMINARY.

1. *Short Title.*—This Act may be cited as the Merchant Shipping Act, 1876.

2. *Construction of Act.*—This Act shall be construed as one with the Merchant Shipping Act, 1854, and the Acts amending the same; and the said Acts and this Act may be cited collectively as the Merchant Shipping Acts, 1854 to 1876.

3. *Commencement of Act.*—This Act shall come into operation on the first day of October, 1876 (which day is in this Act referred to as the commencement of this Act); *nevertheless any Orders in Council and general rules under this Act may be made at any time after the passing of this Act, but shall not come into operation before the commencement of the Act.*

UNSEAWORTHY SHIPS.

4. *Sending Unseaworthy Ship to Sea a Misdemeanor.* 34 & 35 Vict. c. 110, s. 11; 38 & 39 Vict., c. 88, s. 4.—Every person who sends, attempts to send, or is party to sending or attempting to send a British ship to sea in such unseaworthy state that the life of any person likely to be thereby endangered (a), shall be guilty of a misdemeanor unless he proves that he used all reasonable means to insure her being sent to sea in a seaworthy state, or that her going to sea in such unseaworthy state was, under the circumstances, reasonable and justifiable, and, for the purpose of giving such proof, he may give evidence in the same manner as any other witness.

Every master of a British ship who knowingly takes the same to

(a) The Lords have struck out the words, "And the managing owner of a British ship so sent to sea from any port in the United Kingdom."

in such unseaworthy state that the life of any person is likely to be thereby endangered shall be guilty of a misdemeanor, unless he proves that her going to sea in such unseaworthy state was, under the circumstances, reasonable and justifiable, and for the purpose of giving such proof he may give evidence in the same manner as any other witness.

A prosecution under this section shall not be instituted except by or with the consent of the Board of Trade, or of the governor of the British possession in which such prosecution takes place.

A misdemeanor under this section shall not be punishable upon summary conviction.

5. *Obligation of Shipowner to Crew with respect to use of reasonable efforts to secure Seaworthiness.* See 38 & 39 Vict., c. 88, s. 9.—In every contract of service, express or implied, between the owner of a ship and the master or any seaman thereof, and in every instrument of apprenticeship whereby any person is bound to serve as an apprentice on board any ship, there shall be implied, notwithstanding any agreement to the contrary, an obligation on the owner of the ship, that the owner of the ship, and the master, and every agent charged with the loading of the ship, or the preparing thereof for sea, or the sending thereof to sea, shall use all reasonable means to insure the seaworthiness of the ship for the voyage at the time when the voyage commences, and to keep her in a seaworthy condition for the voyage during the same: Provided, that nothing in this section shall subject the owner of a ship to any liability by reason of the ship being sent to sea in an unseaworthy state where, owing to special circumstances, the so sending thereof to sea is reasonable and justifiable.

6. *Power to detain unsafe Ships, and Procedure for such Detention.* See 36 & 37 Vict., c. 85, s. 12.—Where a British ship, being in any port of the United Kingdom, is, by reason of the defective condition of her hull, equipments, or machinery, or by reason of overloading or improper loading, unfit to proceed to sea without serious danger to human life, having regard to the nature of the service for which she is intended, any such ship (hereinafter referred to as “unsafe”) may be provisionally detained for the purpose of being surveyed, and either finally detained or released, as follows:—

- (1.) The Board of Trade, if they have any reason to believe on complaint, or otherwise, that a British ship is unsafe, may provisionally order the detention of the ship for the purpose of being surveyed.
- (2.) When a ship has been provisionally detained there shall be forthwith served on the master (b) of the ship a written

(b) The Lords here struck out the words, “agent, or owner,” but see section 38.

statement of the grounds of her detention, and the Board of Trade may, if they think fit, appoint some competent person or persons to survey the ship and report thereon to the Board.

- (8.) The Board of Trade on receiving the report may either order the ship to be released or, if in their opinion the ship is unsafe, may order her to be finally detained, either absolutely, or until the performance of such conditions with respect to the execution of repairs or alterations, or the unloading or re-loading of cargo, as the Board think necessary for the protection of human life, and may from time to time vary or add to any such order.
- (4.) Before the order for final detention is made, a copy of the report shall be served upon the master of the ship, and within seven days after such service the owner or master of the ship may appeal in the prescribed manner to the Court of Survey (hereinafter mentioned) for the port or district where the ship is detained (c).
- (5.) Where a ship has been provisionally detained, the owner or master of the ship (d) *at any time before the person appointed under this section to survey the ship makes such survey may require that he shall be accompanied by such person as the owner or master may select out of the list of assessors for the Court of Survey (nominated as hereinafter mentioned), and in such case if the surveyor and assessor agree, the Board of Trade shall cause the ship to be detained or released accordingly but if they differ, the Board of Trade may act as if the requisition had not been made, and the owner and master shall have the like appeal touching the report of the surveyor as is before provided by this section.*
- (6.) Where a ship has been provisionally detained, the Board of Trade may at any time, if they think it expedient, refer the matter to the Court of Survey for the port or district where the ship is detained.
- (7.) The Board of Trade may at any time, if satisfied that a ship

(c) The Lords here struck out the following words:—"Where a ship has been provisionally detained on the ground that she is unsafe by reason of overloading and with the consent of the Board of Trade where a ship has been provisionally detained on any other ground, the owner or master of the ship may, within three days after the service of the order on the master, appeal in the prescribed manner to the Court of Survey for the port or district where the ship is detained."

(d) The Lords here struck out the following words:—"May require that the person appointed by the Board of Trade to survey the ship."

detained under this Act is not unsafe, order her to be released either upon or without any conditions.

- (8.) (*See 38 & 39 Vict., c. 88, s. 1.*)—For the better execution of this section, the Board of Trade, with the consent of the Treasury, may from time to time appoint a sufficient number of fit officers, and may remove any of them.
- (9.) Any officer so appointed (in this Act referred to as a detaining officer) shall have the same power as the Board of Trade have under this section of provisionally ordering the detention of a ship for the purpose of being surveyed, and of appointing a person or persons to survey her; and if he thinks that a ship so detained by him is not unsafe may order her to be released.
- (10.) A detaining officer shall forthwith report to the Board of Trade any order made by him for the detention or release of a ship.

7. *Constitution of Court of Survey for Appeals.* *See 36 & 37 Vict., c. 85, s. 14.*—A Court of Survey for a port or district shall consist of a judge sitting with two assessors.

The judge shall be such person as may be summoned for the case in accordance with the rules made under this Act out of a list (from time to time approved for the port or district by one of Her Majesty's Principal Secretaries of State, in this Act referred to as a Secretary of State) of Wreck Commissioners appointed under this Act, stipendiary or metropolitan police magistrates, judges of county courts, and other fit persons; but in any special case in which the Board of Trade think it expedient to appoint a Wreck Commissioner, the judge shall be such Wreck Commissioner.

The assessors shall be persons of nautical engineering or other special skill and experience; one of them shall be appointed by the Board of Trade, either generally or in each case, and the other shall be summoned in accordance with the rules under this Act by the registrar of the court out of a list of persons periodically nominated for the purpose by the Local Marine Board of the port, or, if there is no such board, by a body of local shipowners or merchants approved for the purpose by a Secretary of State, or, if there is no such list, shall be appointed by the judge; if a Secretary of State thinks fit at any time, on the recommendation of the Government of any British possession or any foreign State, to add any person or persons to any such list, such person or persons shall, until otherwise directed by the Secretary of State, be added to such list, and if there is no such list shall form such list.

The county court registrar or such other fit person as a Secretary of State may from time to time appoint shall be the registrar of the court, and shall, on receiving notice of an appeal or a reference from the Board

of Trade, immediately summon the court in the prescribed manner to meet forthwith.

The name of the registrar and his office, together with the rules made under this Act relating to the Court of Survey, shall be published in the prescribed manner.

8. *Power and Procedure of the Court of Survey.*—With respect to the Court of Survey the following provisions shall have effect:—

- (1.) The case shall be heard in open court;
- (2.) The judge and each assessor may survey the ship, and shall have for the purposes of this Act all the powers of an inspector appointed by the Board of Trade under the Merchant Shipping Act, 1854 (17 & 18 Vict., c. 104, s. 14);
- (3.) The judge may appoint any competent person or persons to survey the ship and report thereon to the court;
- (4.) The judge shall have the same power as the Board of Trade have to order the ship to be released or finally detained, but unless one of the assessors concurs in an order for the detention of the ship, the ship shall be released;
- (5.) The owner and master of the ship and any person appointed by the owner or master, and also any person appointed by the Board of Trade, may attend at any inspection or survey made in pursuance of this section;
- (6.) The judge shall send to the Board of Trade the prescribed report, and each assessor shall either sign the report or report to the Board of Trade the reasons for his dissent.

9. *Rules for Procedure of Court of Survey, &c.*—The Lord Chancellor of Great Britain may from time to time (with the consent of the Treasury so far as relates to fees) make, and when made, revoke, alter, and add to general rules to carry into effect the provisions of this Act with respect to a Court of Survey, and in particular with respect to the summoning of and procedure before the court, the requiring on an appeal security for costs and damages, the amount and application of fees, and the publication of the rules.

All such rules while in force shall have effect as if enacted in this Act, and the expression “prescribed” in the provisions of this Act relating to the detention of ships or Court of Survey means prescribed by such rules.

10. *Liability of Board of Trade and Shipowner for Costs and Damages.* See 36 & 37 Vict., c. 85, s. 13.—If it appears that (e) *there was not reason-*

(e) The Lords have struck out the following words, viz.:—“A ship provisionally detained was not, at the time of such detention, unsafe within the meaning of this Act.”

able and probable cause by reason of the condition of the ship or the act or default of the owner, for the provisional detention of the ship, the Board of Trade shall be liable to pay to the owner of the ship his costs of and incidental to the detention and survey of the ship, and also compensation for any loss or damage sustained by him by reason of the detention or survey.

If a ship is finally detained under this Act, or if it appears that a ship provisionally detained was, at the time of such detention, unsafe within the meaning of this Act, the owner of the ship shall be liable to pay to the Board of Trade their costs of and incidental to the detention and survey of the ship, and those costs shall without prejudice to any other remedy, be recoverable as salvage is recoverable.

For the purposes of this Act the costs of and incidental to any proceeding before a Court of Survey, and a reasonable amount in respect of the remuneration of the surveyor or officer of the Board of Trade, shall be deemed to be part of the costs of the detention and survey of the ship, and any dispute as to the amount of costs under this Act may be referred to one of the masters or registrars of the Supreme Court of Judicature, who, on request made to him for that purpose by the Board of Trade, shall ascertain and certify the proper amount of such costs.

An action for any costs or compensation payable by the Board of Trade under this section (see 38 & 39 Vict., c. 88, s. 8) may be brought against the secretary thereof by his official title as if he were a corporation sole; and if the cause of action arises in Ireland, it shall be lawful for any of the superior courts of common law in Ireland, in which such action may be commenced, to order that the summons or writ may be served on the Crown and Treasury Solicitor for Ireland, in such manner and on such terms as to extension of time and otherwise as to the court shall seem fit, and that such service shall be deemed good and sufficient service of such summons or writ upon the Secretary of the Board of Trade.

11. Power to Require from Complainant Security for Costs. See 36 & 37 Vict., c. 85, s. 13; 38 & 39 Vict., c. 88, s. 2.—Where a complaint is made to the Board of Trade or a detaining officer that a British ship is unsafe, the Board or officer may, if they or he think fit, require the complainant to give security to the satisfaction of the Board for the costs and compensation which he may become liable to pay as herein-after mentioned.

Provided that where the complaint is made by one-fourth, being not less than three, of the seamen belonging to the ship, and is not in the opinion of the Board or officer frivolous or vexatious, such security shall not be required, and the Board or officer shall, if the complaint is made in suffi-

cient time before the sailing of the ship, take proper steps for ascertaining whether the ship ought to be detained under this Act.

Where a ship is detained in consequence of any complaint (*f*), and the circumstances are such that the Board of Trade are liable under this Act to pay to the owner of the ship any costs or compensation, the complainant shall be liable to pay to the Board of Trade all such costs and compensation as the Board incur or are liable to pay in respect of the detention and survey of the ship.

12. *Supplementary Provisions as to Detention of Ship.* 17 & 18 Vict., c. 104, s. 14.—(1.) A detaining officer shall have for the purpose of his duties under this Act the same powers as an inspector appointed by the Board of Trade under the Merchant Shipping Act, 1854 (*g*).
- (2.) *An order for detention of a ship, provisional or final, and an order varying the same, shall be served as soon as may be on the master of the ship.*
- (3.) When a ship has been detained under this Act she shall not be released by reason of her British register being subsequently closed.
- (4.) For the purposes of a survey of a ship under this Act any person authorised to make the same may go on board the ship and inspect the same in every part thereof, and the machinery, equipments, and cargo, and may require the unloading or removal of any cargo, ballast, or tackle.
- (5.) The provisions of the Merchant Shipping Act, 1854 (17 & 18 Vict., c. 104, s. 16), with respect to persons who wilfully impede an inspector, or disobey a requisition or order of an inspector, shall apply as if those provisions were herein enacted, with the substitution for the inspector of any judge, assessor, officer, or surveyor, who under this Act has the same powers as an inspector or has authority to survey a ship.

(*f*) The Lords here struck out the following words, viz. :—" And it appears that she was not at the time of such complaint unsafe within the meaning of this Act."

(*g*) The Lords here struck out the following words, viz. :—" A copy of an order for the detention of a ship, provisional or final, and of any order varying the same, shall be served as soon as may be on the owner or master of the ship, and any such copy and a copy of any report or other document for the purposes of this Act may be served on the master of the ship in manner provided by section five hundred and twenty-two of the Merchant Shipping Act, 1854. (17 & 18 Vict., c. 104, s. 522.)"

FOREIGN SHIPS OVERLOADING.

13. *Application to Foreign Ships of Provisions as to Detention.*—Where a foreign ship has taken on board all or any part of her cargo at a port in the United Kingdom, and is whilst at that port unsafe by reason of overloading, or improper loading, the provisions of this Act with respect to the detention of ships shall apply to that foreign ship as if she were a British ship, with the following modifications :—

- (1.) A copy of the order for the provisional detention of the ship shall be forthwith served on the Consular officer for the State to which the ship belongs at or nearest to the place where the ship is detained :
- (2.) Where a ship has been provisionally detained, the Consular officer, on the request of the owner or master of the ship, may require that the person appointed by the Board of Trade to survey the ship shall be accompanied by such person as the Consular officer may select, and in such case if the surveyor and such person agree, the Board of Trade shall cause the ship to be detained or released accordingly, but if they differ, the Board of Trade may act as if the requisition had not been made, and the owner and master shall have the appeal to the Court of Survey touching the report of the surveyor which is before provided by this Act ; and
- (3.) Where the owner or master of the ship appeals to the Court of Survey the Consular officer, on the request of such owner or master, may appoint any competent person who shall be assessor in such case in lieu of the assessor, who, if the ship were a British ship, would be appointed otherwise than by the Board of Trade.

In this section the expression “ Consular officer ” means any consul-general, vice-consul, consular agent, or other officer recognised by a Secretary of State as a Consular officer of a foreign State.

APPEAL ON REFUSAL OF CERTAIN CERTIFICATES TO SHIPS.

14. *Appeal on Refusal of certain Certificates under Merchant Shipping and Passengers Acts.* 17 & 18 Vict., c. 104, ss. 808, 809, 812 ; 25 & 26 Vict., c. 68, s. 12.—Whereas by section three hundred and nine of the Merchant Shipping Act, 1854, and enactments amending the same, the owner of a passenger steamer as defined in that Act is required to cause the same to be surveyed by a shipwright surveyor and an engineer surveyor, and those surveyors are required to give declarations of certain particulars with respect to the sufficiency or conformity with the Act of the ship and equipments, and to the limits beyond which

the ship is not fit to ply, and to the number of passengers which the ship is fit to carry, and of other particulars in the said section mentioned, and the Board of Trade, under section three hundred and twelve of the same Act, issue a certificate upon such declarations, and the passenger steamer cannot lawfully proceed to sea without obtaining such certificate ;

And whereas under sections eleven and fifty of the Passengers Act, 1855 (18 & 19 Vict., c. 119, ss. 11-50 ; 26 & 27 Vict., c. 51, ss. 8-13), and the enactments amending the same, a passenger ship within the meaning of those sections (in this Act referred to as an emigrant ship) cannot lawfully proceed to sea without a certificate of clearance from an emigration officer, or other officer in those sections mentioned, showing that all the requirements of the said sections and enactments have been complied with, and that the ship is in the officer's opinion seaworthy, and that the passengers and crew are in a fit state to proceed to sea, and otherwise as therein mentioned ;

And whereas by section thirty of the Merchant Shipping Act Amendment Act, 1862 (25 & 26 Vict., c. 68, s. 30), provision is made for preventing a ship from proceeding to sea in certain cases without a certificate from a surveyor or person appointed by the Board of Trade to the effect that a ship is properly provided with lights, and with the means of making fog-signals ;

And whereas it is expedient to give in the said cases such appeal as hereinafter mentioned : Be it therefore enacted that—

If a shipowner feels aggrieved,

- (1.) by a declaration of a shipwright surveyor or an engineer surveyor respecting a passenger steamer under the above-recited enactments, or by the refusal of a surveyor to give the said declaration ; or
- (2.) by the refusal of a certificate of clearance for an emigrant ship under the above-recited enactments ; or
- (8.) by the refusal of a certificate as to lights or fog-signals under the above-recited enactment,

the owner may appeal in the prescribed manner to the Court of Survey for the port or district where the ship for the time being is.

On such appeal the judge of the Court of Survey shall report to the Board of Trade on the question raised by the appeal, and the Board of Trade when satisfied that the requirements of the report and the other provisions of the said enactments have been complied with, may,—

- (1.) In the case of a passenger steamer give their certificate under section three hundred and twelve of the Merchant Shipping Act, 1854, and

- (2.) In the case of an emigrant ship give, or direct the emigration or

other officer to give, a certificate of clearance under the above-mentioned enactments, and

- (8.) In the case of a refusal of a certificate as to lights or fog-signals, give or direct a surveyor or other person appointed by them to give a certificate under section thirty of the Merchant Shipping Act Amendment Act, 1862.

Subject to any order made by the judge of the Court of Survey, the costs of and incidental to an appeal under this section shall follow the event.

Subject as aforesaid, the provisions of this Act with respect to the Court of Survey and appeals thereto, so far as consistent with the tenor thereof, shall apply to the Court of Survey when acting under this section, and to appeals under this section (h).

Where the survey of a ship is made for the purpose of a declaration or certificate under the above-recited enactments, the person appointed to make the survey shall, if so required by the owner be accompanied on the survey by some person appointed by the owner, and in such case if the said two persons agree there shall be no appeal to the Court of Survey in pursuance of this section.

SCIENTIFIC REFEREES.

15. *Reference in Difficult Cases to Scientific Persons.*—If the Board of Trade are of opinion that an appeal under this Act involves a question of construction or design, or of scientific difficulty of important principle, they may refer the matter to such one or more out of a list of scientific referees from time to time approved by a Secretary of State, as may appear to possess the special qualifications necessary for the particular case, and may be selected by agreement between the Board of Trade and the appellant, or in default of any such agreement by a Secretary of State, and thereupon the appeal shall be determined by the referee or referees instead of by the Court of Survey.

The Board of Trade, if the appellant in any appeal so require and give security to the satisfaction of the Board to pay the costs of and incidental to the reference, shall refer that appeal to a referee or referees so selected as aforesaid.

(h) The Lords here struck out the following words, viz:—"In cases of urgency the owner may, instead of appealing as aforesaid, require that the Board of Trade surveyor shall again make a survey accompanied by such person as the owner may select out of the list of assessors (nominated as herein mentioned) or out of any list approved by the Board of Trade, and in such case if the surveyor and such person agree in their report the Board of Trade shall act in the same manner as if the report had been made by the judge of the Court of Survey under the provisions of this section, but if they differ the Board of Trade may act as if the requisition had not been made, and the owner shall have the like appeal as is herein-before provided by this section."

The referee or referees shall have the same powers as a judge of the Court of Survey.

PASSENGER STEAMERS AND EMIGRANT SHIPS.

16. *Exemption of certain Steamers from Passenger Certificates.*—Any steamship may carry passengers not exceeding twelve in number, although she has not been surveyed by the Board of Trade as a passenger steamer, and does not carry a Board of Trade certificate as provided by the Merchant Shipping Act, 1854, with respect to passenger steamers.

17. *Colonial Certificates for Passenger Steamers.*—Where the Legislature of any British possession provides for the survey of and grant of certificates for passenger steamers, and the Board of Trade report to Her Majesty that they are satisfied that the certificates are to the like effect, and are granted after a like survey, and in such manner as to be equally efficient with the certificates granted for the same purpose in the United Kingdom under the Acts relating to Merchant Shipping, it shall be lawful for Her Majesty by Order in Council—

1. To declare that the said certificates shall be of the same force as if they had been granted under the said Acts ; and
2. To declare that all or any of the provisions of the said Acts which relate to certificates granted for passenger steamers under those Acts shall, either without *modification* or with such *modifications* as to Her Majesty may seem necessary, apply to the certificates referred to in the Order ; and
3. To impose such conditions and to make such regulations with respect to the said certificates, and to the use, delivery, and cancellation thereof, as to Her Majesty may seem fit, and to impose penalties not exceeding fifty pounds for the breach of such conditions and regulations.

18. *Provision against Double Survey in case of Passenger Steamers and Emigrant Ships.*—In every case where a passenger certificate has been granted to any steamer by the Board of Trade under the provisions of the Merchant Shipping Act, 1854, and remains still in force, it shall not be requisite for the purposes of the employment of such steamer under the Passengers Acts that she shall be again surveyed in her hull and machinery in order to qualify her for service under the Passengers Act, 1855, and the Acts amending the same ; but for the purposes of employment under those Acts such Board of Trade certificate shall be deemed to satisfy the requirements of the Passengers Acts with respect to such survey, and any further survey of the hull and machinery shall be dis-

pensed with, and so long as a steamship is an emigrant ship that is a passenger ship within the meaning of the Passengers Act, 1855, and the Acts amending the same, and the provisions contained in the said Passengers Acts as to the survey of her hull, machinery, and equipments have been complied with, she shall not be subject to the provisions of the Merchant Shipping Act, 1854, with respect to the survey of and certificate for passenger steamers, or to the enactments amending the same.

19. *Provision as to Survey of Foreign Passenger Steamer or Emigrant Ship.*—Where a foreign ship is a passenger steamer subject to the Merchant Shipping Act, 1854, and the Acts amending the same, or an emigrant ship subject to the Passengers Act, 1855, and the Acts amending the same, and the Board of Trade are satisfied by the production of the foreign certificate of survey attested by a British consular officer at the port of survey, that such ship has been officially surveyed at a foreign port, and are satisfied that the requirements of the said Acts, or any of them, are proved by such survey to have been substantially complied with, the Board may, if they think fit, dispense with any further survey of the ship in respect of the requirements so complied with, and give or direct one of their officers to give a certificate, which shall have the same effect as if given upon survey under the said Acts or any of them: Provided that Her Majesty may by Order in Council, direct that this section shall not apply in the case of an official survey at any foreign port at which it appears to Her Majesty that corresponding provisions are not extended to British ships.*

20. *Power to modify Passenger Acts as to Food, Space, and Accommodation in Emigrant Ships.*—It shall be lawful for the Board of Trade, if satisfied that the food, space, accommodation, or any other particular or thing provided in an emigrant ship for any class of passengers is superior to the food, space, accommodation, or other particular or thing required by the Passengers Act, 1855, and the Acts amending the same, to exempt such ship from any of the requirements of those Acts with respect to food, space, or accommodation, or other particular or thing, in such manner and upon such conditions as the Board of Trade may think fit.*

21. *Provision of Signals of Distress, Inextinguishable Lights, and Life Buys in Passenger Steamers and Emigrant Ships.* 86 & 37 Vict., c. 85,

* These clauses, 19 and 20, were added bodily by the Lords.

(*) The word "passenger" was here struck out by the Lords.

s. 18. See 17 & 18 Vict., c. 104, s. 301.—Every sea-going passenger steamer and every (i) *emigrant* ship shall be provided to the satisfaction of the Board of Trade—

- (1.) With means for making the signals of distress at night specified in the First Schedule to “The Merchant Shipping Act, 1873,” or in any rules substituted therefor, including means of making flames on the ship which are inextinguishable in water, or such other means of making signals of distress as the Board of Trade may previously approve; and
- (2.) With a proper supply of lights inextinguishable in water and fitted for attachment to life-buoys.

If any such *steamer* or ship goes to sea from any port of the United Kingdom without being so provided as required by this section, for each default in any of the above requisites the owner shall, if he appears to be in fault, incur a penalty not exceeding one hundred pounds, and the master shall, if he appears to be in fault, incur a penalty not exceeding fifty pounds.

GRAIN CARGOES.

22. *Stowage of Cargo of Grain, &c.* 38 & 39 Vict., c. 88, s. 3.—No cargo of which more than one-third consists of any kind of grain, corn, rice, paddy, pulse, seeds, nuts, or nut kernels, hereinafter referred to as “grain cargo,” shall be carried on board any British ship, unless such grain cargo be contained in bags, sacks or barrels, or secured from shifting by boards, bulkheads, or otherwise.

If the managing owner (*k*) or master of any British ship, or any agent of such owner who is charged with the loading of the ship or the sending her to sea, knowingly allows any grain cargo, or part of a grain cargo, to be shipped therein for carriage contrary to the provisions of this section, he shall for every such offence incur a penalty not exceeding three hundred pounds, to be recovered upon summary conviction.

DECK CARGOES.

28. *Space Occupied by Deck Cargo to be Liable to Dues.*—If any ship, British or foreign, other than home trade ships as defined by the Merchant Shipping Act, 1854, carries as deck cargo, that is to say, in any uncovered space upon deck, or in any covered space not included in the cubical contents forming the ship's registered tonnage, timber, stores, or other goods, all dues payable on the ship's tonnage shall be payable as if there were added to the ship's registered tonnage the tonnage of the space occupied by such goods at the time at which such dues become payable.

(*k*) The word “agent” was here struck out by the Lords.

The space so occupied shall be deemed to be the space limited by the area occupied by the goods and by straight lines inclosing a rectangular space sufficient to include the goods.

The tonnage of such space shall be ascertained by an officer of the Board of Trade or of Customs, in manner directed by sub-section four of section twenty-one of the Merchant Shipping Act, 1854 (17 & 18 Vict., c. 104, s. 21), and when so ascertained shall be entered by him in the ship's official log-book, *and also in a memorandum which he shall deliver to the master, and the master shall, when the said dues are demanded, produce such memorandum in like manner as if it were the certificate of registry, or, in the case of a foreign ship, the document equivalent to a certificate of registry, and in default shall be liable to the same penalty as if he had failed to produce the said certificate or document (1).*

24*. Penalty for Carrying Deckloads of Timber in Winter.—After the first day of November, one thousand eight hundred and seventy-six, if a ship, British or foreign, arrives between the last day of October and the sixteenth day of April in any year at any port in the United Kingdom from any port out of the United Kingdom, carrying as deck cargo, that is to say, in any uncovered space upon deck, or in any covered space not included in the cubical contents forming the ship's registered tonnage, any wood goods coming within the following descriptions; that is to say—

(1) The following clause was here struck out by the Lords:—"From and after the first day of January, one thousand eight hundred and seventy-seven, a ship, British or foreign, arriving at any port in the United Kingdom, which has sailed from any port beyond the limits of the United Kingdom after the first day of October or before the sixteenth day of March in any year, shall not, while subject to British jurisdiction, carry as deck cargo, that is to say, in any uncovered space upon deck, or in any covered space not included in the cubical contents forming the ship's registered tonnage, any timber, deals, or battens.

If any timber, deals, or battens be carried by any ship in contravention of this section, the master of the ship and also the owner, if he is privy to the offence, shall be liable to a penalty not exceeding five pounds for every hundred cubic feet of timber, deals, or battens so carried, and such penalty, to an amount not exceeding one hundred pounds (whatever may be the maximum penalty recoverable), may be recovered on summary conviction.

Provided, that a master or owner shall not be liable to any penalty under this section in respect of any timber, deals, or battens which the master has considered it necessary to place or keep on deck during the voyage on account of the springing of any leak, or of any other damage to the ship received or apprehended.

Provided also, that nothing in this clause shall affect any foreign ship coming into any port of the United Kingdom under stress of weather, or for repairs, or for any other purpose than the delivery of her cargo.

* This clause, No. 24, was substituted by the Lords for the one struck out by them.

- (a.) Any square, round, waney, or other timber, or any pitch pine, mahogany, oak, teak, or other heavy wood goods whatever ; or
- (b.) Any more than five spare spars or store spars, whether or not made, dressed, and finally prepared for use ; or
- (c.) Any deals, battens, or other light wood goods of any description to a height exceeding three feet above the deck.

The master of the ship, and also the owner, if he is privy to the offence, shall be liable to a penalty not exceeding five pounds for every hundred cubic feet of wood goods carried in contravention of this section, and such penalty may be recovered by action or on indictment or to an amount not exceeding one hundred pounds (whatever may be the maximum penalty recoverable) on summary conviction.

Provided that a master or owner shall not be liable to any penalty under this section—

- (1.) In respect of any wood goods which the master has considered it necessary to place or keep on deck during the voyage on account of the springing of any leak, or of any other damage to the ship received or apprehended ; or
- (2.) If he proves that the ship sailed from the port at which the wood goods were loaded as deck cargo at such time before the last day of October as allowed a sufficient interval according to the ordinary duration of the voyage for the ship to arrive before that day at the said port in the United Kingdom, but was prevented from so arriving by stress of weather, or circumstances beyond his control ; or
- (3.) If he proves that the ship sailed from the port at which the wood goods were loaded as deck cargo at such time before the sixteenth day of April as allowed a reasonable interval according to the ordinary duration of the voyage for the ship to arrive after that day at the said port in the United Kingdom, and by reason of an exceptionally favourable voyage arrived before that day.

Provided further, that nothing in this section shall affect any ship not bound to any port in the United Kingdom which comes into any port of the United Kingdom under stress of weather, or for repairs, or for any other purpose than the delivery of her cargo.

DECK AND LOAD-LINES.

25. *Marking of Deck-Lines.* 88 & 89 Vict., c 88, s. 5.—Every British ship (except ships under eighty tons register employed solely in the coasting trade, ships employed solely in fishing, and pleasure yachts) shall be permanently and conspicuously marked with lines of not less

than twelve inches in length and one inch in breadth, painted longitudinally on each side amidships, or as near thereto as is practicable, and indicating the position of each deck which is above water.

The upper edge of each of these lines shall be level with the upper side of the deck plank next the waterway at the place of marking.

The lines shall be white or yellow on a dark ground, or black on a light ground.

26. *Marking of Load-Line on Foreign-going British Ships.* 38 & 39 Vict., c. 88, s. 6.—With respect to the marking of a load-line on British ships, the following provisions shall have effect :—

- (1.) The owner of every British ship (except ships under eighty tons register employed solely in the coasting trade, *ships employed solely* in fishing, and pleasure yachts) shall, before entering his ship outwards from any port in the United Kingdom upon any voyage for which he is required so to enter her, or, if that is not practicable, as soon after as may be, mark upon each of her sides amidships, or as near thereto as is practicable, in white or yellow on a dark ground, or in black on a light ground, a circular disc, twelve inches in diameter, with a horizontal line eighteen inches in length, drawn through its centre :
- (2.) The centre of this disc shall indicate the maximum load-line in salt water to which the owner intends to load the ship for that voyage :
- (3.) He shall also, upon so entering her, insert in the form of entry delivered to the collector or other principal officer of Customs, a statement in writing of the distance in feet and inches between the centre of this disc and the upper edge of each of the lines indicating the position of the ship's decks which is above that centre :
- (4.) If default is made in delivering this statement in the case of any ship, any officer of Customs may refuse to enter the ship outwards :
- (5.) The master of the ship shall enter a copy of this statement in the agreement with the crew before it is signed by any member of the crew, and no superintendent of any Mercantile Marine office shall proceed with the engagement of the crew until this entry is made :
- (6.) The master of the ship shall also enter a copy of this statement in the official log-book :
- (7.) When a ship has been marked as by this section required, she shall be kept so marked until her next return to a port of discharge in the united Kingdom.

27.* *Marking of Load-line in case of Coasting Vessels.*—With respect to the marking of a load-line on British ships employed in the coasting trade, the following provisions shall have effect:—

- (1.) The owner of every British ship employed in the coasting trade on the coasts of the United Kingdom (except ships under eighty tons register, employed solely in that trade) shall, before proceeding to sea from any port, mark upon each of her sides amidships, or as near thereto as is practicable, in white or yellow on a dark ground, or in black on a light ground, a circular disc twelve inches in diameter, with a horizontal line eighteen inches in length drawn through its centre :
- (2.) The centre of this disc shall indicate the maximum load-line in salt water to which the owner intends to load the ship, until notice is given of an alteration :
- (3.) He shall also, once in every twelve months, immediately before the ship proceeds to sea, send or deliver to the collector or other principal officer of Customs of the port of registry of the ship, a statement in writing of the distance in feet and inches between the centre of the disc and the upper edge of each of the lines indicating the position of the ship's decks which is above that centre :
- (4.) The owner, before the ship proceeds to sea after any renewal or alteration of the disc, shall send or deliver to the collector or other principal officer of Customs of the port of registry of the ship notice in writing of such renewal or alteration, together with such statement in writing as before mentioned of the distance between the centre of the disc and the upper edge of each of the deck-lines :
- (5.) If default is made in sending or delivering any notice or statement required by this section to be sent or delivered, the owner shall be liable to a penalty not exceeding one hundred pounds :
- (6.) When a ship has been marked as by this section required, she shall be kept so marked until notice is given of an alteration.

28. *Penalty for Offences in relation to Marks on Ships.* 38 & 39 Vict., c. 88, s. 7.—Any owner or master of a British ship who neglects to cause his ship to be marked as by this Act required, or to keep her so marked, or who allows the ship to be so loaded as to submerge in salt water the centre of the disc, and any person who conceals, removes, alters, defaces, or obliterates, or suffers any person under his control to conceal,

* This clause (27) was inserted on the day before the prorogation of Parliament at the instigation of Mr. Plimsoll, when the commons were considering the Lords' amendments.

remove, alter, deface, or obliterate any of the said marks, except in the event of the particulars thereby denoted being lawfully altered, or except for the purpose of escaping capture by an enemy, shall for each offence incur a penalty not exceeding one hundred pounds.

If any of the marks required by this Act is in any respect inaccurate, so as to be likely to mislead, the owner of the ship shall incur a penalty not exceeding one hundred pounds.

INVESTIGATIONS INTO SHIPPING CASUALTIES.

29. *Appointment, Duties, and Powers of Wreck Commissioners for investigating Shipping Casualties.* See 17 & 18 Vict., c. 104 s. 483.—For the purpose of rendering investigations into shipping casualties more speedy and effectual it shall be lawful for the Lord High Chancellor of Great Britain to appoint from time to time some fit person or persons to be a *Wreck Commissioner* or *Wreck Commissioners for the United Kingdom*, so that there shall not be more than three such Commissioners at any one time, and to remove any such Wreck Commissioner; and in case it shall become necessary to appoint a Wreck Commissioner in Ireland the Lord Chancellor of Ireland shall have the appointment and the power of removal of such Wreck Commissioner.

It shall be the duty of a Wreck Commissioner, at the request of the Board of Trade, to hold any formal investigation into a loss, abandonment, damage, or casualty (in this Act called a shipping casualty) under the eighth part of the Merchant Shipping Act, 1854, and for that purpose he shall have the same jurisdiction and powers as are thereby conferred on two justices, and all the provisions of the Merchant Shipping Acts, 1854 to 1876, with respect to investigations conducted under the eighth part of the Merchant Shipping Act, 1854, shall apply to investigations held by a Wreck Commissioner.

30. *Assessors and Rules of Procedure on Formal Investigations into Shipping Casualties.* See 17 & 18 Vict., c. 104, s. 494.—The Wreck Commissioner, justices, or other authority holding a formal investigation into a shipping casualty shall hold the same with the assistance of an assessor or assessors of nautical engineering or other special skill or knowledge, to be appointed by the commissioner, justices, or authority out of a list of persons for the time being approved for the purpose by a Secretary of State (m).

(m) The Lords here struck out the following words:—"When an investigation may involve the cancellation or suspension of the certificate of a master or mate, one of the assessors shall, where practicable, be a person having experience in the merchant service."

The commissioner, justices, or authority, when of opinion that the investigation is likely to involve the cancellation or suspension of the certificate of a master or mate, shall, where practicable, appoint a person having experience in the merchant service to be one of the assessors.

Each assessor shall either sign the report made on the investigation, or report to the Board of Trade his reasons for his dissent therefrom.

The Lord *High* Chancellor of Great Britain may from time to time, with the consent of the Treasury so far as relates to fees, make, and when made revoke, alter, and add to general rules for carrying into effect the enactments relating to formal investigations into shipping casualties, and in particular with respect to the summoning of assessors, the procedure, the parties, the persons allowed to appear, the notice to such parties and persons or to persons affected, and the amount and application of fees.

All such rules, while in force, shall have effect as if enacted in this Act.

Every formal investigation into a shipping casualty shall be conducted in such manner that if a charge is made against any person that person shall have an opportunity of making a defence.

81. Power for Wreck Commissioner to Institute Examination with respect to Ships in Distress under 17 & 18 Vict., c. 104, s. 448.—A wreck commissioner may at the request of the Board of Trade *by himself, or by some deputy approved by the Board of Trade*, institute the same examination as a receiver of wreck under section four hundred and forty-eight of the Merchant Shipping Act, 1854, and shall for that purpose have the powers by that section conferred on a receiver of wreck.

82. Power to Hold Inquiries or Formal Investigations as to Stranded and Missing Ships. See 17 & 18 Vict., c. 104, s. 482.—In the following cases :—

- (1.) Whenever any ship on or near the coasts of the United Kingdom or any British ship elsewhere has been stranded or damaged, and any witness is found at any place in the United Kingdom, or
- (2.) Whenever a British ship has been lost, or is supposed to have been lost, and any evidence can be obtained in the United Kingdom as to the circumstances under which she proceeded to sea or was last heard of,

the Board of Trade (without prejudice to any other powers) may if they think fit, cause an inquiry to be made or formal investigation to be held, and all the provisions of the Merchant Shipping Acts, 1854 to 1876, shall apply to any such inquiry or investigation as if it had been made or held under the eighth part of the Merchant Shipping Act, 1854.

83. *Place of Investigation.*—A formal investigation into a shipping casualty may be held at any place appointed in that behalf by the Board of Trade, and all enactments relating to the authority holding the investigation shall, for the purpose of the investigation, have effect as if the place so appointed were a place appointed for the exercise of the ordinary jurisdiction of that authority.

MISCELLANEOUS.

84. *Enforcing Detention of Ship.* See 17 & 18 Vict., c. 104, s. 108.—Where under the Merchant Shipping Acts, 1854 to 1876, or any of them, a ship is authorised or ordered to be detained, any commissioned officer on full pay in the naval or military service of Her Majesty, or any officer of the Board of Trade or Customs, or any British Consular officer may detain the ship, and if the ship after such detention or after service on the master of any notice of or order for such detention proceeds to sea before it is released by competent authority, the master of the ship, and also the owner, and any person who sends the ship to sea, if *such owner or person be party or privy to the offence*, shall forfeit and pay to Her Majesty a penalty not exceeding one hundred pounds.

Where a ship so proceeding to sea takes to sea when on board thereof in the execution of his duty any officer authorised to detain the ship, or any surveyor or officer of the Board of Trade or Customs, the owner and master of the ship shall each be liable to pay all expenses of and incidental to the officer or surveyor being so taken to sea, and also a penalty not exceeding one hundred pounds, or, if the offence is not prosecuted in a summary manner, not exceeding ten pounds for every day until the officer or surveyor returns, or until such time as would enable him after leaving the ship to return to the port from which he is taken, and such expenses may be recovered in like manner as the penalty (n).

85.* *Service of Order on Master, &c.*—Where any order, notice, statement, or document requires, for the purpose of any provision of this Act, to be served on the master of a ship, the same shall be served, where there is no master, and the ship is in the United Kingdom, on the managing owner of the ship, or, if there is no managing owner, on some agent of the owner residing in the United Kingdom, or where no such

(n) The Lords here struck out the following words:—"Any person who obstructs the service of any notice or order for detention on the master of a ship shall incur a penalty not exceeding ten pounds, and if the owner or master of the ship is party or privy to such obstruction he shall be guilty of a misdemeanor."

* This clause (35) was added in the Lords.

agent is known or can be found, by affixing a copy thereof to the mast of the ship.

Any such order, notice, statement, or document, may be served by delivering a copy thereof personally to the person to be served, or by leaving the same at his last place of abode, or in the case of a master by leaving it for him on board the ship with the person being or appearing to be in command or charge of such ship.

Any person who obstructs the service of any order, notice, statement, or document on the master of a ship shall incur a penalty not exceeding ten pounds, and if the owner or master of the ship is party or privy to such obstruction, he shall be guilty of a misdemeanor.

86. *Ship's Managing Owner or Manager to be Registered.*—The name and address of the managing owner for the time being of every British ship registered at any port or place in the United Kingdom shall be registered at the Custom House of the ship's port of registry.

Where there is not a managing owner there shall be so registered the name of the ship's husband or other person to whom the management of the ship is entrusted by or on behalf of the owner; and any person whose name is so registered shall, for the purposes of the Merchant Shipping Acts, 1854 to 1876, be under the same obligations, and subject to the same liabilities, as if he were the managing owner.

If default is made in complying with this section the owner shall be liable, or if there be more owners than one, each owner shall be liable in proportion to his interest in the ship, to a penalty not exceeding in the whole one hundred pounds each time the ship leaves any port in the United Kingdom.

87. *Power for Her Majesty by Order in Council to apply certain Provisions of Merchant Shipping Acts to Foreign Ships.*—Whenever it has been made to appear to Her Majesty that the Government of any Foreign State is desirous that any of the provisions of the Merchant Shipping Acts, 1854 to 1876, or of any Act hereafter to be passed amending the same, shall apply to the ships of such State, Her Majesty may, by Order in Council, declare that such of the said provisions as are in such Order specified shall (subject to the limitations, if any, contained in the Order) apply, and thereupon, so long as the Order remains in force, such provisions shall apply (subject to the said limitations) to the ships of such State, and to the owners, masters, seamen, and apprentices of such ships when not *locally* within the jurisdiction of such State, in the same manner in all respects as if such ships were British ships.

88.* *Provision as to Order in Council.*—Where Her Majesty has power

* This clause was added in the Lords.

under the Merchant Shipping Act, 1854, or any Act passed or hereafter to be passed amending the same, to make an Order in Council, it shall be lawful for Her Majesty from time to time to make such Order in Council, and by Order in Council to revoke, alter, or add to any Order so made.

Every such Order in Council shall be published in the *London Gazette*, and shall be laid before both Houses of Parliament within one month after it is made, if Parliament be then sitting, or if not, within one month after the then next meeting of Parliament.

Upon the publication of any such Order in the *London Gazette*, the Order shall, after the date of such publication, or any later date mentioned in the Order, take effect as if it were enacted by Parliament (o).

39. Fees, Salaries, and Costs.—On and after the first day of January, one thousand eight hundred and seventy-seven, all fees payable in respect of the survey or measurement of ships under the Merchant Shipping Acts, 1854 to 1876, or in respect of any services performed by any person employed under the authority of the Passengers Act, 1855, shall continue to be paid to the superintendent of a Mercantile Marine office at such times and in such manner as the Board of Trade from time to time direct, but shall be paid into the receipt of Her Majesty's Exchequer in such manner as the Treasury from time to time direct, and shall be carried to and form part of the Consolidated Fund of the United Kingdom.

On and after the same day the salaries of all surveyors appointed under the Merchant Shipping Acts, 1854 to 1876, and so much of the expenses connected with the survey and measurement of ships under those Acts, and of the salaries and expenses of persons employed under the Passengers Act, 1855, as has heretofore been paid out of the Mercantile Marine Fund, shall be paid out of moneys provided by Parliament, and the Treasury shall have the like control over such salaries and expenses as has heretofore been vested in the Board of Trade.

There may be paid out of moneys provided by Parliament, to any Wreck Commissioner, judge of a Court of Survey, assessor, registrar of a Court of Survey, detaining officer, scientific referee, and other officer or person appointed under this Act, such salary or remuneration (if any) as the Treasury from time to time direct.

There may be paid out of moneys provided by Parliament all costs and compensation payable by the Board of Trade in pursuance of this Act.

40. Legal Proceedings in Case of Offences.—For the purpose of punish-

(o) The following words were here struck out by the Lords:—"Nothing in this Act shall apply to any ships whilst on the inland waters of Canada."

ment, jurisdiction, and legal proceedings an offence under this Act shall be deemed to be an offence under the Merchant Shipping Act, 1854.

41. *Application of Act to Scotland.*—In the application of this Act to Scotland,

The provision with respect to a prosecution not being instituted except by or with the consent of the Board of Trade shall not apply.

“Judge of a county court” shall be deemed to include a sheriff and sheriff substitute, and

“Registrar of a county court” shall be deemed to include sheriff clerk, and

“A master of the Supreme Court of Judicature” shall mean the Queen’s and Lord Treasurer’s Remembrancer.

42. *Application of Act to Ireland.*—In the application of this Act to Ireland,—

“Judge of a county court” shall be deemed to include “chairman of a county” and “the recorder of any borough”;

“Registrar of a county court” shall be deemed to include the clerk of the peace or registrar or other person discharging the duties of registrar of the court, of the chairman of a county, or the recorder of a borough;

“Stipendiary magistrate” shall be deemed to include any of the justices of the peace in Dublin metropolis and any resident magistrate; and

“A master of the Supreme Court of Judicature” shall mean one of the masters of the Superior Courts of Common Law in Ireland.

43. *Application of Act to Isle of Man.*—In the application of this Act to the Isle of Man,—

“Judge of a county court” shall mean the water bailiff;

“Stipendiary magistrate” shall mean a high bailiff;

“Registrar of a county court” shall mean a clerk to a deemster or a clerk to justices of the peace;

“A master of the Supreme Court of Judicature” shall mean the clerk of the rolls.

44.* *Saving for Colonial Inland Waters.*—Nothing in this Act shall apply to any vessel employed exclusively in trading or going from place to place in any river or inland water of which the whole or part is in any British possession, and the provisions of this Act relating to deck cargo shall not apply to deck cargo carried by a ship while engaged in the coasting trade of any British possession.

* This clause (44) was added by the Lords.

REPEAL.

45. *Repeal of Acts.*—On and from the commencement of this Act the Acts specified in the first part of the schedule hereto, and on and from the first day of January one thousand eight hundred and seventy-seven, the Acts specified in the second part of the schedule hereto shall be repealed to the extent in the third column of that schedule mentioned: Provided that any officer appointed in pursuance of any such enactment shall be deemed to have been appointed under this Act, and any Order in Council made in pursuance of any such enactment shall be deemed to have been made under this Act, and this repeal shall not affect—

- (1.) Anything done or suffered under any enactment hereby repealed; nor
- (2.) Any right, power, duty, obligation, or liability acquired, imposed, accrued, or incurred under any enactment hereby repealed; nor
- (3.) Any penalty or punishment incurred in respect of any offence against any enactment hereby repealed; nor
- (4.) Any legal proceeding in respect of any such right, power, duty, obligation, liability, penalty, or punishment, and any such legal proceeding may be carried on as if this Act had not passed.

SCHEDULE.

PART I.

ENACTMENTS REPEALED FROM COMMENCEMENT OF ACT.

Session and Chapter.	Title.	Extent of repeal.
17 & 18 Vict., c. 104.	The Merchant Shipping Act, 1854	Sub-section (4) of section three hundred and one; so much of section three hundred and eighteen as requires the owner of a ship to transmit the declarations therein mentioned; section four hundred and thirty-four; and section four hundred and thirty-seven from "and in case he so requires," inclusive to the end of section; and section four hundred and forty-nine.

PART I.—(continued.)

Session and Chapter.	Title.	Extent of repeal.
34 & 35 Vict., c. 110 -	The Merchant Shipping Act, 1871	Section eleven.
36 & 37 Vict., c. 85 -	The Merchant Shipping Act, 1873	Sections eleven, twelve, thirteen, and fourteen.
38 & 39 Vict., c. 88 -	The Merchant Shipping Act, 1875	The whole Act.

PART II.

ENACTMENTS REPEALED FROM 1ST JANUARY, 1877.

17 & 18 Vict., c. 104 -	The Merchant Shipping Act, 1854	Sub-section (2) of section four hundred and eighteen.
35 & 36 Vict., c. 73 -	The Merchant Shipping Act, 1872	Section fourteen.

ENGAGEMENT AND DISCHARGE OF SEAMEN BEFORE CONSULS IN THE UNITED STATES.—We are glad to be able to record that the recent attempt in the United States to dispute the validity of engagements of seamen for British ships made before British Consuls in America has failed. The case in question was that of William Nott, a seaman, who was shipped at Portland, before the British Vice-Consul, on board the British ship *Stratheden*, in February, 1875. The vessel went from Portland to Melbourne, and returned to Portland, on arrival at which port Nott claimed his discharge, although not entitled to it by the Articles. The case was heard by Judge Deady, of the United States Admiralty Court, who decided that Nott was entitled to his discharge and wages because he had not been shipped before the United States Shipping Commissioner as provided by Act of Congress. The Vice-Consul then appealed to the Circuit Court, but the case not being properly brought before the Court, Judge Deady's opinion was confirmed, but the Shipping Commissioner was instructed to confine his duties to American shipping, and on the 15th March Judge Deady informed the Vice-Consul that he retracted his decision as to the interpretation of the Merchant Shipping Act of the United States, finding that were the matter brought clearly before the Circuit Court a reversal would be certain.

HEALTH OF SEAMEN.

THE following is an extract from the "Half-Yearly Report of the Medical Officer of Health for the Port of London, to the Port Sanitary Committee," ending December 31st, 1875:—

"The importance of obtaining accurate statistical particulars of disease, as well as of mortality, has been so plainly shown, that, during the past year I have directed Inspectors Lewis and Pritchard to note, as far as they were able, the nature of the malady of all sick sailors found afloat, and referred by them to the Dreadnought Seamen's Hospital at Greenwich. It will be seen by reference to Appendix [A] that a total of 203 sick men have been found afloat in the port by your officers during the past six months, and the diseases from which these men were suffering tended to confirm an opinion that I formed some eight or nine years ago, as to the expediency of adopting for the Mercantile Marine a modified, but in certain cases a compulsory, medical examination of the men about to be employed. Such an examination has always been the rule in the Army, Navy, India Department, in the Emigration Service, and in most cases, in the Civil Service, and, were no other reason assigned for its necessity, the fact that, on the sea, when a man fails, there is no one to supply his place, should be all sufficient. Observations gleaned from shipowners, shipmasters, and others in the United States, as well as the United Kingdom, go to prove that very few ships ever sail from a home or a colonial port with sound and healthy crews. Men frequently knock up before they have been a week at sea, do little or no work during the entire passage, give additional labour to the rest of the watch, take money from the owners that they have not earned, and are eventually sent home by the Board of Trade at the expense of the ratepayers. These expenses at the present time amount to more than £80,000 annually.

"It must be remembered, however, that such men are suffering, not from an acute or recent attack of illness, but from some disease of long standing. Cases of chronic rheumatism in all its varieties, consumption, heart disease, ruptures, and chronic dysentery are to be found by scores and hundreds in our Merchant Navy, as those who are familiar with the practice of the Dreadnought Hospital can readily attest. And it is a curious fact (but one that intensifies the serious aspects of the subject) that the sufferers from these chronic maladies usually persist in clinging to that class of voyage, or that particular work, which, for climatic or other reasons, is most likely to aggravate the particular disorder under which they are suffering. A seaman, for example, affected with dysentery, will go to India and China again and again, although he knows

(or should be told) that those countries are the homes of this disease. And so a man, with what is called West Coast fever, persists in going to Lagos or the Gambia, when almost any other kind of voyage would exercise a beneficial and curative effect.

"It will be seen, therefore, that because a sailor is the subject of some chronic malady, he need not necessarily be eliminated from the Mercantile Marine service, that is to say, unless the disease is far advanced. Men with tendencies to consumption should be declined for the home trade, but will do well enough in Australian or New Zealand voyages. Men with heart disease must confine themselves to deck work, and so on.

"These observations are not based upon a superficial knowledge of the subject, but are the result of about fifteen years' experience in this port, during which time many statistical particulars have been collected from the records of the Seamen's Hospital and elsewhere.

"It is, therefore, satisfactory to know that this matter will be at last definitely treated in the new Merchant Shipping Bill, for I am sure that if an examination, such as appears to be indicated in Sir Charles Adderley's measure, be conducted with judgment, a considerable improvement in the sanitary condition of sailors will result, and the chances of shipwreck and loss of life afloat by accident or stress of weather be materially lessened.

"SCHOOL-SHIPS.—The epidemics that have occurred on board certain school-ships moored in the Thames since I commenced duty as your Medical Officer of Health, the recent destruction by fire of two of these ships, and the evident determination that exists to increase the number of such institutions, has led me to inquire particularly into the internal arrangements of establishments that form at the present time the homes of about 4,000 boys, and are likely soon to house as many more.

"With this view, I have, by the courtesy of the respective managers and superintendents, visited and examined closely during the past year not only the ships in our own sanitary district, but those also at Liverpool, and about a month ago I went to Shields and Hull for the purpose of inspecting the *Wellesley* and *Southampton*, the former of which has several novel arrangements. Thus five ships only (*i.e.*, those at Cardiff, Bristol, Belfast, Dundee, and Glasgow) out of a total of fifteen, remain unvisited.

"With the object of showing as clearly and concisely as possible the varied arrangements that now exist, I have obtained from the respective superintendents sectional drawings of all the school-ships in the Kingdom, showing the situations of the sick bay, galley, washing-room, ventilators, hatchways, and all bulkheads that make, so to speak, closed spaces. These will be found, with their description, in Appendix [G], and it is

proper to record here my great indebtedness to the commanding officers of the ships for their courtesy in furnishing me with these details.

"The chief sanitary difficulties of these floating establishments, as contrasted with schools on shore, are connected with the

" 1. Situation.

" 2. Ventilation.

" 3. Water Supply.

" 4. Closets.

" 5. Berths.

" 6. Hospital Accommodation.

" 7. Prevention of Disease.

" 1. *Situation.* The situation of a vessel at permanent moorings, must of course influence her sanitary condition considerably. It is very desirable that all school-ships should swing with the tide (an arrangement not permissible in the Thames above Gravesend), so that each side may have, at some time of the week, all varieties of light and heat. (In this respect, a ship at a single mooring has an advantage over a house.) It is necessary to avoid proximity to outfalls of every kind, whether from sewers, drains, chemical works, or other manufactories, also to wharves used for the loading and discharging of vessels with unclean cargoes, such as manure, bones, and rotten fruit; to avoid, in fact, any condition that is likely to create, directly or indirectly, a foul stream or a foul foreshore. It is necessary, for administrative purposes, to be tolerably close to a town, but best on all sanitary grounds to be, at all events, quite in the suburbs.

" 2. *Ventilation.* It will, of course, be conceded that, as with a house, so with a large ship at permanent moorings, the condition of the basement should, in a sanitary sense, be the very first consideration. It is evident, but does not appear to have been always thought of, that an ill-ventilated hold and foul bilges in a ship are as fruitful sources of disease as a cesspool or an ill-ventilated sewer under a dwelling-house.

"It appears to me, therefore, that when a ship is handed over by the Admiralty for educational purposes, the process of fitting up (or rather of clearing out) should commence from below upwards, and not from above downwards. All parts on both sides of the keelson, including limbers, water ways and well, should be so opened as to be easily accessible at any time, which condition necessitates the removal of bulkheads in the hold, so as to make a clear walk along the keelson from stem to stern. All places where small pools of water can collect should be cemented up, so that no stagnant water can possibly exist, for any collections in the water ways and well should be removed every twenty-four hours, so as practically to maintain an almost absolutely dry ship. Having regard to administrative arrangements, it does not appear necessary that, with the

exception of water and coals and some spare tackle, any stores need be kept in the hold. Assuming this to be the case, the best plan, in a sanitary sense, is to clear away all bulkheads fore and aft, from the bow to the sternpost, leaving the keelson as a centre path, with water tanks and coal bunkers on either side, but with no obstruction from deck to deck at any point to hinder the free sweep of air along the sides as well as the centre of the hold. If a large air-shaft be sent up from each end above the upper deck, and both fitted with common cowls, one can be made an up and the other a down cast. Some ventilation (usually upcast) goes on between the skins of the ship. As this consists of vitiated air, all grated and other openings on the inhabited decks, communicating with the skin spaces, should be carefully and permanently closed, and the air in the spaces allowed to find an exit through tubes led into, or above, the hammock nettings.

“Most of the arrangements here described exist on H.M.S. *Britannia* (the naval cadet ship off Dartmouth). I believe they are, in their entirety, all sufficient for keeping the nethermost part of the ship atmospherically clean, and they can, if necessity arise, be always supplemented by burning a fire in the hold for a few hours—a very old and simple but very excellent way of producing a strong upcast, and so purifying a vessel. Whatever plan of ventilation, however, be adopted in the hold or elsewhere, the exhaust is better than the plenum principle (either for wooden or iron ships), for, if the foul air can be got rid of (i.e., good upcast ventilation be established and maintained), the fresh air may safely be left to find its own way into every part of the ship.

“The propriety of making the hold a receptacle for the cook-house, bake-house, wash-room or galley, is an open question. Artificial heat below assists ventilation above. But any one of these plans involves the building up of something equivalent to bulkheads, and thus creating the closed spaces below, which is so very desirable to avoid. It is well, if practicable, that the hatchways between the hold and the lower deck should be simply covered with any sort of grating.

“Proceeding upwards, the orlop (or, as in some cases the lower gun-deck) is reached, in which the majority and sometimes all the boys usually sleep. The ventilation of this deck is, of course, very important. No better plan suggests itself to me than that adopted by many, and familiar as I take it, to all superintendents of school-ships, viz., boxing in the port or scuttle openings, and conveying the air in at the bottom of the deck. The ports or scuttles thus serve as conveyors of clean air, and the hatchways remove the foul air, i.e., serve as up-casts. From this it is manifest that unless the hatchways are enclosed from deck to deck, the lowest deck is, as regards air, always the cleanest, and hence is rightly chosen as the best for berthing.

“This deck should be entirely clear of bulkheads fore and aft. Bow and stern ports, either or both, occasionally exist on this deck, and should always be maintained clear of all bulkhead interruptions, as a fore and aft current is most valuable, and can, of course, be easily regulated.

“The middle and main decks are, as a rule, sufficiently ventilated by large square ports and hatchways, but here the tendency to multiply bulkhead work becomes, in a sanitary sense, inconvenient. The sick bay, galley, washing-room, and other domestic offices must be to a certain extent isolated from the other quarters. It may, however, I think be taken as a rule.

“(a) That the sick bay should never be bulkheaded more than waist high.

“(b) That the galley (on whatever level) should be always in the centre line of the ship, and hence need not obstruct the free passage of air on either side to and from the bow ports.

“(c) That battens are a sufficient separation for the washing-room. All other partitions (except, of course, those for the officers' cabins) should be scrupulously avoided.

“The hatchways in the upper deck are sometimes covered with glazed skylights, having hinged or sashed openings.

“3. *Water Supply.* The importance of exercising extreme care and constant supervision in this matter cannot be too much insisted upon, because we know now positively that water may carry cholera and typhoid, if not other zymotic diseases, from one person and place to another.

“It is also equally necessary to indicate that even if water be pure when supplied to the ship, care must be exercised in the system of conveyance, and the kind of storage employed. If the ship is moored well in shore, and does not swing, the best mode of transport is a flexible hose connecting the main pipe on shore with the tanks on board, and sunk in the bed of the river by winding round it a light chain cable. This plan was adopted on the Dreadnought Hospital Ship for many years, and answered excellently well. The same plan obtains as regards the *Wellesley*, at Shields. By this means, unless under very exceptional circumstances, the water is not exposed at all, and cannot be contaminated between the shore and the ship, so that the inhabitants of the latter are supplied with as good an article as those on land.

“If, however, the ship swings at her moorings, or is far from shore, water must, of course, be brought off in bulk, necessitating two operations, viz., filling up on shore, and pumping again into the ship. The best form of water boat appears to be that in which the entire craft is occupied by the tank, or by two tanks, the tanks being closed with the exception of the manholes.

"It may appear trivial, but it is really very important, to see that the ends of the hose used on shore in pumping in, and on board in pumping out, are not left to trail about unnecessarily so as to collect dirt or other objectionable material, and also that before filling, a smart current of water is sent through the hose so as to cleanse it completely. In the intervals of use, the tank should, of course, be always kept closed, and the boat moored in as clean a place as possible. The tanks, both in the boat and on the ship, should be limewashed at frequent intervals.

"As regards the tanks on the ship, which are usually in the hold, it is advisable to see that the manholes are, as a rule, kept closed, it being impossible otherwise to prevent the ingress of some impurities. If, as sometimes occurs, the tank into which the water is first sent contains more or less deposit, a very small quantity of Condry's Fluid should be dropped into this tank, which should be cleaned more frequently than the rest.

"As a precautionary measure, it is well that the small tank to which the boys have access for drinking purposes should be one of Crease's Patent, than which, I think, there is no more efficient filter, either for ship or shore use.

"All cocks communicating with pipes that contain other than the proper drinking water should be locked or stopped, as boys, if thirsty, will drink anything, utterly disregarding its source of origin.

"4. *Closets.* The closets or 'heads' which are always fixed at the bows, on either side of the bowsprit, are variously arranged and managed on different ships, and are usually a weak point.

"Having seen many plans, I have come to the conclusion (as regards the receptacles below the seats) that wood is the worst, iron or lead, if often scraped and washed, fairly clean, and slate, the best material. The cleanest form of 'head' is a long slate trough with seats over it, placed amidships on each side of the bowsprit as on the *Akbar*, with a wide opening at the lower end; the trough partially filled with water from tanks placed in the hammock nettings or elsewhere above, and emptied at stated intervals, or, as I think better still, a small but constant stream of water might be sent into the trough at the upper end; the opening at the lower end would in this case be always patent, and as the surface of the trough is perfectly smooth, no accumulations can take place.

"Trough urinals, also of slate, should be fixed at the outer sides of the 'head,' the floor should be paved with slate, tiles, or some impervious material, and, indeed, as little wood should be used in the construction of these places as possible. All the troughs should be thoroughly mopped out with carbolic acid water every morning, and the lower end of the discharge pipes should be always, if possible, below the water line.

"5. *Berths.* The berthing of the boys, though really a simple matter,

has very decided sanitary aspects. In Her Majesty's Service the hammocks were (and in some cases, I believe, still are) slung close to the beams of the deck above, so that their inmates breathed over and over again the foul air that collected between the beams. Though this is not the case in school-ships, there is still a tendency in some instances to sling hammocks too high. It appears to me that for purposes of health the lowest part of the hammock should not be more than twenty to twenty-four inches from the deck below, so as to secure as much clean air as is practicable (assuming that the ventilating arrangements above described are in action).

"Light iron bedsteads with coir mattresses from sixteen to eighteen inches high, are used on board some ships, and are, in a sanitary sense, quite as good as, and perhaps better than hammocks, but occupy more space.

"Wet-a-beds, I believe, are, and certainly should be, berthed quite apart from the other boys.

"*Hospital Accommodation.* This has been, up to the present time, and still is, one of the weak points of school-ship organization. It cannot be too forcibly impressed upon the minds of those charged with the management and supervision of these establishments that the sick bay should, in no sense of the word, be classed as a hospital, or infirmary, or place of abode for the sick; that it should be, as a rule (and a rule, too, with very few exceptions), merely a temporary refuge for, say, forty-eight hours, or, at the most, three days, until it can be definitely determined whether the patient is well enough to rejoin his mess. If not—and whether the exact nature of the malady be determined or not—he should at once be sent away from the vessel, for his own sake, and for the advantage of the ship's company. For, however well arranged a sick bay may be, it is necessarily, more or less, a corner, with insufficient cubic space, too little light, and not sufficient quiet; it is, in fact, an altogether unsuitable dwelling-place for sick persons, and is frequently an element of danger to the surrounding community.

"Such being the case, it follows that all school-ship establishments are seriously incomplete, unless provided with hospital accommodation in the neighbourhood of, but distinct from, the school and its personnel.

"The importance of this subject is so obvious, and with a prospective increase of school-ships in the Thames, compels my attention so forcibly, that I may refer the Committee to the Special Report on the *Cornwall* outbreak at page 22 as exemplifying the serious complications that arise from want of a place to which to send the sick. Having no hospital at hand, the doubtful cases were, in this case, kept on board; those pronouncedly ill were treated by the surgeon of the ship in huts, as the epidemic increased; others were sent to the Seamen's Hospital, thirteen,

and to St. Bartholomev's Hospital, fifteen miles away; and, finally, the use of your Hospital Ship *Rhin* was obtained. This was, it may be argued, an entirely exceptional case, and one in which emergency aid could not be dispensed with; but a school-ship without proper hospital accommodation is equally, so to speak, helpless, whether two or twenty per cent. of the boys be attacked; and it should also be remembered that, to quote the opinion of Dr. Buchanan and other eminent authorities, the risk of the spread of any epidemic disease diminishes in direct proportion, as the separation of the sick from the healthy is more speedy and decisive.

"There are at the present time five school-ships of various classes moored in the Thames, and, as I am informed, before many months have passed, two, if not three, more will be added to their number.

"Of the five ships, the *Clio* (successor to the *Warspite*) is moored off Charlton, and may be considered as sufficiently provided with hospital accommodation, as the Seamen's Hospital is within about two-and-a-half miles by water.

"The other ships all lie within about four miles of each other (even supposing that the *Cornwall* remains at Gravesend), but, with the exception of the late *Goliath*, have no hospital accommodation, and none that is available on shore for many miles round.

"Any vessels added to this fleet of school-ships would, as I am informed by Captain Jenkins (Harbour Master at Gravesend), be moored within the same limits. I cannot but think, for reasons of convenience, as well as of economy, that, as regards hospital purposes, a combination of all these school-ship authorities should be made, and a place of reception for the sick be kept up either ashore or afloat, to which all would contribute, and which would be used by each and all in common as occasion might require.

"If the difficulties of combination were surmounted, the administrative details might be easily sketched out, and the financial aspect of the matter cannot, I should suppose, be regarded otherwise than favourably. It is possible that the Admiralty would, for such a purpose, be willing to allow the *Rhin* to be handed over to the school-ship authorities. She might, with some inexpensive alterations, be made a fair hospital ship, and is far too large and unwieldy a vessel for a port sanitary establishment, which latter is maintained solely for the reception of cases of cholera imported from abroad by the shipping.

"I think that, for occasional or emergency purposes, a floating is better than a shore hospital, on account of the following reasons:—

"1. Because it can be moved readily, near to the ship that requires its accommodation.

"2. Because the land on both sides of the river between Greenhithe

and Gravesend is very low and unfitted for hospital sites, as it is marshy and, to some extent, miasmatic.

“ Under any circumstances, it is necessary to record very distinctly that this Port Sanitary Authority is not responsible for providing hospital accommodation, either for school-ships or the inmates of any other vessels moored or moving within the district, but is bound to see that cases of contagious and infectious diseases are removed as speedily as possible from all classes of vessels.

“ 6. *Prevention of Disease.* Although the foregoing suggestions are made with a view to the prevention of disease as well as to the maintenance of health, the adoption of certain systematic precautions will frequently arrest the importation of a contagious malady, and so avert an epidemic. All boys, immediately before admission to the school should be carefully examined by the medical officer attached to the ship. There should also be a doctor's muster on board once a week, so that he may have an opportunity of examining all the boys, and if prolonged leave is granted to any boys, means should be taken to ascertain whether these boys have been exposed to any special infection. Ships occupied by charitable societies, reformatories, or industrial schools, ought to be much more free from such risks than the cadet-ships, where regular holidays are the rule, and the boys are scattered over the country for several weeks together.

“ It appears hardly necessary to comment upon the importance of personal cleanliness. To avoid the spread of ophthalmia, itch, or any other purely contagious disease of a local character, means for the fumigation and disinfection of clothing should always exist on board, and some sort of provision in the way of a mortuary should be made and maintained.

“ In concluding these observations upon school-ships I ought to remark that I have only aimed on this occasion to point out in a very general way some necessary sanitary requirements, and have, as all those who command school-ships will perceive, picked out what I have considered the good points from many ships, all of which points I should like to see in existence on one vessel. There are many other things relating more or less to health, as diet, clothes, cleanliness, and the like, that might have been commented upon, but I have purposely left these untouched, because I am strongly impressed with the conviction that it is the first duty to look after the structural arrangements of the ship; the next to see that healthy boys only are received, and the third to keep those received (by means of cleanliness, sufficient diet, and proper clothing) in a good state of repair.

“ THE ‘ CORNWALL ’ EPIDEMIC.—It has already been mentioned in the introduction to this Report that the records of the past half-year acquire a

particular significance on account of special work performed in connection with school-ships, six of which were, and five are at the present time, permanently moored within the jurisdiction of this Port Sanitary Authority.

"For more than three months much anxiety has been caused by an extended, though not very fatal, outbreak of typhoid (enteric) fever on board the *Cornwall*, a school-ship established to receive so-called reformatory boys, and until the last few weeks moored off Purfleet in Essex. The first case appears to have commenced on or about the 14th of September in the person of a boy employed at work in the galley.

"It has not been satisfactorily determined how or where this boy 'took' the disease, milk and other now recognised vehicles of infection being eliminated from the history of the case. He was affected for some few days before admission into the ship's sick bay, was in the sick bay five days, and was eventually removed to the Seamen's Hospital. No further cases were reported until the 2nd of October—i.e., eighteen days after the announcement of the first case, but there is evidence to show that mild diarrhoea had previously affected some of the boys. Dr. Glen Bott, medical officer to the ship, reported at the above date three fresh cases of fever; on the 6th, 20 boys were ill at the Seamen's Hospital at Greenwich, and up to the 12th a total of 38 cases had occurred, including the carpenter of the ship. As the number of patients continued to increase, the temporary accommodation on shore was exhausted, and after trespassing as far as possible upon the resources of the Seamen's Hospital, and sending some few cases to St. Bartholomew's Hospital, Captain Morrell, R.N., Superintendent of the ship, applied for the use of your Hospital Ship *Rhin*. Permission was granted immediately, 13 boys were sent down on the 26th of October, and placed under the care of Dr. Whitcombe, and from that date to the 22nd of January, when she was finally vacated by the *Cornwall* boys, the *Rhin* accommodated a total of 120 boys, of whom 56 were sick, and the rest suspected or convalescent, besides a staff of officers and nurses.

"One case only ended fatally in the *Rhin*, and it is right to record in this place that the skill and energy of my colleague, Dr. Whitcombe, in the treatment of this large number of cases, were unremitting, and have been, as I believe, fully appreciated by the authorities of the *Cornwall*. As the epidemic still lingered on, I suggested to the School-ship Committee the propriety of removing the rest of the boys *en masse* to another vessel, mooring that vessel in any convenient position suggested by the Harbour Master, and removing the *Cornwall* (for a time at all events) from Purfleet. The *Alexandra* saloon boat was secured for this purpose from the London Steamboat Company, the removal was effected on the

20th November, and the *Alexandra* was placed by Captain Jenkins, Harbour Master, at a single mooring below Gravesend, and conveniently near to your Hospital Ship *Rhin*. The *Cornwall* was also (under the superintendence of Captain Jenkins) removed to Gravesend on the 28th of December, and it is satisfactory to report that from the date of these changes the epidemic speedily declined, and soon ceased entirely. The boys returned from the *Alexandra* to the *Cornwall* on the 15th of January, and at the present time, the latter ship having been thoroughly disinfected, cleansed, and whitewashed, is undergoing some structural alterations inside, both above and below the water-line, that will, as I believe, tend to make her in several important sanitary points a better school-ship than formerly.

“The suggestions made from this office have been most favourably received and considered by the *Cornwall* authorities. I have had many conferences on sanitary subjects with Captain Morrell, the Superintendent, and have also, at the request of his Committee, seen Mr. Simon, the Medical Officer of the Local Government Board, as to the expediency of removing the ship permanently from Purfleet, it having been suggested that the neighbourhood of the Metropolitan main drainage outfalls, though from five to six miles distant, might possibly exercise a prejudicial effect upon the health of the boys.

“The probable causes of this outbreak of fever may be thus particularised:—

“The water used for drinking purposes had, up to the commencement of the epidemic, been conveyed from the shore to the ship in an open boat in bulk several times every week. The boat, in the intervals of work, was moored at the ship's side, immediately under the galley scupper, and not far from the lower end of the discharge-pipe of the star-board main closet, and the discharge-pipe of the closet in the sick bay, the lower end of which was usually above the water-line. A very moderate swell, or a squally head wind, would suffice to direct a spray or stream of excreta from any one of these discharge-pipes into the water-boat. This being so, it is easy to see how the first case may have infected, and, as I believe, most probably did infect, the drinking water, and so transmitted the disease to the other boys. For it must be remembered that the boy first attacked made use of the ordinary closets in the head, the night deck-pans that were emptied into the head, and the sick-bay closet, at least nine days before he was removed to the Seamen's Hospital, during all of which time he was suffering from the diarrhoea of typhoid.

“Analyses of the water were made separately and independently by Dr. Meymott Tidy and Dr. Paul, samples being taken from the main on shore, and from the tanks on board the ship. The results of the

analyses showed that there was no very definite reason to condemn the water as delivered from the main on shore.

"The result of inquiries made by Dr. Glen Bott, Medical Officer of the *Cornwall*, and Dr. Quinton, in medical charge of the Purfleet garrison (to both of whom I am indebted for much polite assistance), showed that no epidemic of typhoid existed in any house or village supplied with this water, which is derived from the chalk and brought from Grays. The conclusion at which I have arrived appears, therefore, tenable, viz., that the first case by means of the excreta affected the drinking water, and so communicated the disease to those who were subsequently attacked. Before the results of the analyses and the completion of the evidence were forthcoming, I recommended, as a precautionary measure, that the main on the shore should be directly connected with the tanks on board the ship, by means of a flexible hose sunk along the bed of the river. As some delay occurred in the completion of these arrangements, the drinking water used in the *Cornwall* was (without my knowledge) taken from a private well in Purfleet, which water, when analysed, was found to be entirely unfit for use, and so may have tended to perpetuate the epidemic.

"A summary of statistics relative to this outbreak shows that of 258 persons resident in the *Cornwall*, 120 were attacked (or nearly 50 per cent.)—a very large number. Two fatal cases only occurred, one at Greenwich, and the other on board the *Rhin*.

"Having made, in conjunction with the Captain-Superintendent and the Medical Officer, a careful examination of all parts of the ship shortly after the commencement of the epidemic, I enclosed to the Committee of the *Cornwall* a Report, concluding with certain practical recommendations, which latter are appended herewith.

"1. The shore water-pipe to be carried to a point immediately opposite the ship, and a flexible hose attached to a light chain cable connecting the pipe with the tanks on board the ship.

"2. Pending this arrangement iron tanks to be used in the water boat instead of casks.

"3. All tanks on board the ship to be emptied immediately, cleansed, re-filled, and charged with Condyl's fluid.

"4. The hold and all spaces under the lower deck to be fumigated repeatedly with sulphur.

"5. The space in front of the magazine to be ventilated.

"6. All water 'settlings' near the keelson to be sponged out and charged with carbolic acid.

"7. All fixed closets to be abolished in the main deck forward.

"8. The present 'heads' to be removed and others substituted, the troughs of which should be lined with slate; the troughs to be filled with

water and emptied at frequent and regular intervals, or (as I think a still better plan) supplied with a small but constant running stream of water from tanks fixed in the hammock nettings, or elsewhere above.

"9. The present position of the sick-bay to be altered at an early period, so that ventilation may be secured by making the bulkhead only about waist high.

"Several other important alterations (referred to above) below the water-line are also in progress, as it was considered desirable to recommend that the bulkheads in the hold should be so opened up as to make a clean sweep along the keelson fore and aft, and that all spaces near the keelson, in which water can possibly lodge, should be cemented, so as to present a smooth, even, and impervious surface throughout.

"At the present time the ship is in a very healthy condition, having, too, an additional advantage over all others in the Thames of being able to swing at her moorings.

"It needs but to point out, in conclusion, how greatly the difficulties of combatting this outbreak were increased by the absence of hospital accommodation, the importance of which is fully discussed in the preceding remarks on school-ships.

"HARRY LEACH, M.R.C.P.L.,

"Medical Officer of Health for the Port of London."

RAPER'S NAVIGATION.—IV.

669. TO FIND THE CHANGE OF ALTITUDE IN A SMALL INTERVAL OF TIME.

(1) The Hour Angle and Altitude being given.

By 615 Foot Note $\sin e = \sin c. \operatorname{Cosec} Z. \sec l$
or $\sin c = \sin e. \sin Z. \cos l$

By triangle APZ $\frac{\sin Z}{\sin P} = \frac{\sin AP}{\sin AZ} = \frac{\cos d}{\cos a}$
or $\sin Z = \sin P. \cos d. \sec a$

therefore $\sin c = \sin e. \sin P. \cos d. \sec a. \cos l$

Hence the rule.—Add together the Log Cosines of the Lat and Decl ($\cos l, \cos d$), the Log Sin of the reduced Hour Angle ($\sin P$), the Log Sec of the Alt ($\sec a$), and the Log Sin of the Interval ($\sin e$); the sum (rejecting tens) is the Log Sin of the Change of Altitude ($\sin c$).

671. (2) The Azimuth being given.

This is simply the formula in 669

$$\sin c = \sin e. \sin Z. \cos l$$

Hence the rule.—Add together the Log Sin of the Azimuth ($\sin Z$), the Log Cos of the Lat ($\cos l$), and the Log Sin of the Interval of Time ($\sin e$); the sum (rejecting tens) is the Log Sine of the Change of Altitude ($\sin c$).

676. TO FIND THE AZIMUTH, THE HOUR ANGLE AND ALTITUDE BEING GIVEN.

By triangle A P Z,

$$\frac{\sin Z}{\sin P} = \frac{\sin A P \cos d}{\sin A Z \cos a}$$

$$\sin Z = \sin P. \cos d. \sec a$$

Hence the rule.—Add together the Log Cos of the Decl ($\cos d$), the Log Sin of the Hour Angle ($\sin P$), and the Log Sec of the Alt ($\sec a$); the sum (rejecting tens) is the Log Sin of the Azimuth ($\sin Z$).

678. TO FIND THE AZIMUTH, NOT FAR FROM THE MERIDIAN, BY THE OBSERVED CHANGE OF ALTITUDE IN A SMALL INTERVAL OF TIME.

By 669

$$\sin c = \sin e. \sin Z. \cos l$$

$$\sin Z = \sin c. \operatorname{Cosec} e. \sec l$$

Hence the rule.—Add together the Log Sin of the Change of Alt ($\sin c$), the Log Cosec of the Interval ($\operatorname{Cosec} e$), and the Log Sec of the Lat ($\sec l$); the sum (rejecting tens) is the Log Sin of the Azimuth ($\sin Z$) about the middle of the Interval.

677. Table 46 is calculated from the formula in 678, e being 1^m , and c the Change of Alt in 1^m .

692. Foot note.

The Meridian Altitude is not always the Greatest Altitude. This may occur in two cases; the principal one, when the body—as for example the Moon—changes its Declination very rapidly; the other when the ship changes her Latitude very quickly, that is, when she is steering true N or S nearly at a very high rate.

Let A be the greatest Altitude, a the Meridian Altitude, l the Latitude, D the Declination at the time of the Greatest Altitude, d the Declination when on the Meridian, c the change of Declination in 1 hour, P the Hour Angle at the Greatest Altitude, then by the figure p. 144 Raper

$$\sin A = \sin l. \sin D + \cos l. \cos D. \cos P \quad (1)$$

Let the Polar Distance be decreasing, and P be expressed in seconds, then

$$D = d + x \text{ where } x = \frac{P. c}{8600}$$

$$\begin{aligned} \sin D &= \sin d \cdot \cos x + \cos d \cdot \sin x = \sin d + \cos d \cdot \sin x \} x \text{ being sm} \\ \cos D &= \cos d \cdot \cos x - \sin d \cdot \sin x = \cos d - \sin d \cdot \sin x \} \cos x = 1 \text{ nly.} \end{aligned}$$

Substituting these values in (1)

$$\begin{aligned} \sin A &= \sin l (\sin d + \cos d \cdot \sin x) + \cos l (\cos d - \sin d \cdot \sin x) \cos P \\ &= \sin l \cdot \sin d + \sin l \cdot \cos d \cdot \sin x + \cos l \cdot \cos d \cdot \cos P \\ &\quad - \cos l \cdot \sin d \cdot \sin x \cdot \cos P \end{aligned}$$

$$\begin{aligned} &= \sin l \cdot \sin d + \sin l \cdot \cos d \cdot \sin x + \cos l \cdot \cos d \cdot \cos P \\ &\quad - \cos l \cdot \sin d \cdot \sin x (1 - 2 \sin^2 \frac{1}{2} P) \end{aligned}$$

$$\begin{aligned} &= \sin l \cdot \sin d + \sin l \cdot \cos d \cdot \sin x + \cos l \cdot \cos d \cdot \cos P \\ &\quad - \cos l \cdot \sin d \cdot \sin x + 2 \cos l \cdot \sin d \cdot \sin x \cdot \sin^2 \frac{1}{2} P \end{aligned}$$

The last term containing $\sin x$ and $\sin^2 \frac{1}{2} P$ being very small may be omitted.

$$\begin{aligned} &= \sin l \cdot \sin d + \sin x (\sin l \cdot \cos d - \cos l \cdot \sin d) \\ &\quad + \cos l \cdot \cos d \cdot \cos P \end{aligned}$$

$$= \sin l \cdot \sin d + \sin x \cdot \sin (l - d) + \cos l \cdot \cos d \cdot \cos P$$

$$\begin{aligned} \text{But } \sin x &= \sin \frac{P \cdot c}{3600} = \frac{c}{3600} \sin P, P \text{ being expressed in time} \\ &= \frac{c}{54000} \sin P, P \text{ being expressed in arc} \end{aligned}$$

$$\begin{aligned} \text{Therefore } \sin A &= \sin l \cdot \sin d + \frac{c}{54000} \sin P \cdot \sin (l - d) \\ &\quad + \cos l \cdot \cos d \cdot \cos P \end{aligned}$$

$$= \sin l \cdot \sin d + \cos l \cdot \cos d \left\{ \frac{c}{54000} \cdot \sin P \cdot \frac{\sin (l - d)}{\cos l \cdot \cos d} + \cos P \right\}$$

$$\text{Let } \sin y = \frac{c}{54000} \cdot \frac{\sin (l - d)}{\cos l \cdot \cos d}$$

$$= \sin l \cdot \sin d + \cos l \cdot \cos d \{ \sin P \cdot \sin y + \cos P \}$$

$$\text{But } \cos (P - y) = \cos P \cdot \cos y + \sin P \cdot \sin y$$

$$= \cos P + \sin P \cdot \sin y, (\cos y = 1 \text{ nly})$$

$$\text{Therefore } \sin A = \sin l \cdot \sin d + \cos l \cdot \cos d \cdot \cos (P - y)$$

Since l and d are constant, the greatest value of A depends on the greatest value of $\cos (P - y)$ which is unity, therefore $\cos (P - y) = 1$ or $P = y$.

Hence the Hour Angle at the Greatest Altitude is found from the expression

$$\sin P = \frac{c}{54000} \cdot \frac{\sin (l - d)}{\cos l \cdot \cos d}$$

$$\text{Also } \cos^2 P = 1 - \sin^2 P = 1 - \left(\frac{c}{54000} \right)^2 \cdot \frac{\sin^2 (l - d)}{\cos^2 l \cdot \cos^2 d}$$

Extracting the square root of each side, and omitting terms containing higher powers than the second

$$\cos P = 1 - \frac{1}{2} \left(\frac{c}{54000} \right)^2 \cdot \frac{\sin^2 (l - d)}{\cos^2 l \cdot \cos^2 d} + \&c.$$

Substituting this value of $\cos P$ in (1)

$$\begin{aligned}\sin A &= \sin l \cdot \sin D + \cos l \cdot \cos D \left\{ 1 - \frac{1}{2} \left(\frac{c}{54000} \right)^2 \cdot \frac{\sin^2 (l-d)}{\cos^2 l \cdot \cos^2 d} \right\} \\ &= \sin l \cdot \sin D + \cos l \cdot \cos D - \frac{1}{2} \left(\frac{c}{54000} \right)^2 \cdot \frac{\sin^2 (l-d)}{\cos l \cdot \cos d} \\ &\quad (\cos D = \cos d \text{ nly.})\end{aligned}$$

$$= \cos (l-D) - \frac{1}{2} \left(\frac{c}{54000} \right)^2 \cdot \frac{\sin^2 (l-d)}{\cos l \cdot \cos d}$$

$$\text{But } \sin a = \cos (l-d) = \cos (l-D) \text{ nly.}$$

$$\text{Therefore } \sin a - \sin A = \frac{1}{2} \left(\frac{c}{54000} \right)^2 \cdot \frac{\sin^2 (l-d)}{\cos l \cdot \cos d}$$

$$2 \cos \frac{1}{2} (a+A) \cdot \sin \frac{1}{2} (a-A) = \quad "$$

$$\text{But } \cos \frac{1}{2} (a+A) = \cos a \text{ nly} = \sin (l-d)$$

$$\text{And } 2 \sin \frac{1}{2} (a-A) = \sin (a-A) = (a-A) \sin 1'' \text{ nly.}$$

$$\text{Therefore } (a-A) \sin 1'' = \frac{1}{2} \left(\frac{c}{54000} \right)^2 \cdot \frac{\sin (l-d)}{\cos l \cdot \cos d}$$

$$\text{or } (a-A) = \frac{1}{2 \sin 1''} \cdot \left(\frac{c}{54000} \right)^2 \cdot \frac{\sin (l-d)}{\cos l \cdot \cos d}$$

From this expression $(a-A)$ or the difference between the Meridian and Greatest Altitudes can be found. Let us now see what is the error in using the Greatest as the Meridian Altitude in each of the cases mentioned.

(1) A change of Declination.

For the Sun the greatest value of c is $1'$, hence there is no material error in taking the Greatest as the Meridian Altitude.

For the Moon the greatest value of c is $18'$, and when c is greatest $d=0$; the expression, therefore, becomes

$$a-A = \frac{1}{2 \sin 1''} \cdot \left(\frac{18}{54000} \right)^2 \cdot \tan l$$

$$\text{If } l=60^\circ, a-A=1' 11''$$

(2) A change of Latitude.

Suppose the vessel is sailing due N or S at the rate of 12 miles an hour, then if $l=60^\circ$, $a-A$ cannot exceed $50''$.

Hence for the purpose of finding the Latitude at Sea by using the Greatest as the Meridian Altitude, the error in Latitudes less than 60° can never exceed 2 miles, and this limit will be reached only in the case of using the Moon's Altitude.

The following method of finding the Hour Angle of the Greatest Altitude has been kindly communicated to me by T. S. Oborn, Esq., R.N., of the Royal Naval College, Greenwich.

Using the ordinary notation and figure p. 144. Raper, we have by 615

Change in Hour Angle = Change in Alt. Sec Lat. Cosec Az

If a is the Change of Alt in 1°

$$1 = \frac{a}{15} \cdot \text{Sec } l. \text{Cosec } Z$$

$$a = 15 \cdot \text{Cos } l. \text{Sin } Z$$

The object is at its Greatest Altitude when the rate of change in Alt. is equal to the rate of change in Declination.

If c is the change of Declination in 1 hour, $\frac{c}{3600}$ is the change of Declination in 1° .

$$\text{Therefore } 15 \cdot \text{Cos } l. \text{Sin } Z = \frac{c}{3600}$$

$$\text{or } \text{Cos } l. \text{Sin } Z = \frac{c}{54000}$$

$$\text{Also } \frac{\text{Sin } Z}{\text{Sin } P} = \frac{\text{Sin } p}{\text{Sin } z} = \frac{\text{Cos } d}{\text{Sin } (1-d)} \quad \text{because } z \text{ is very nearly Mer. Zen. Dist.}$$

$$\text{Sin } Z = \frac{\text{Sin } P \cdot \text{Cos } d}{\text{Sin } (1-d)}$$

$$\text{Therefore Cos } l. \frac{\text{Sin } P \cdot \text{Cos } d}{\text{Sin } (1-d)} = \frac{c}{54000}$$

$$\text{Sin } P = \left(\frac{c}{54000} \right) \cdot \frac{\text{Sin } (1-d)}{\text{Cos } l. \text{Cos } d}$$

The difference between the Greatest and Meridian Altitudes may be obtained by using the result of the next article (700).

P being small $\text{Sin } P = 2 \text{Sin } \frac{1}{2} P$

$$\text{Therefore } 2 \text{Sin } \frac{1}{2} P = \left(\frac{c}{54000} \right) \cdot \frac{\text{Sin } (1-d)}{\text{Cos } l. \text{Cos } d}$$

$$4 \text{Sin}^2 \frac{1}{2} P = \left(\frac{c}{54000} \right)^2 \cdot \frac{\text{Sin}^2 (1-d)}{\text{Cos}^2 l. \text{Cos}^2 d}$$

$$\begin{aligned} \text{By (700) } \text{Sin } r \text{ or } \text{Sin } (a-A) &= \frac{\text{Cos } l. \text{Cos } d}{\text{Sin } (1-d)} \cdot 2 \text{Sin}^2 \frac{1}{2} P \\ &= \frac{\text{Cos } l. \text{Cos } d}{\text{Sin } (1-d)} \cdot \frac{1}{2} \cdot \left(\frac{c}{54000} \right)^2 \cdot \frac{\text{Sin}^2 (1-d)}{\text{Cos}^2 l. \text{Cos}^2 d} \\ &= \frac{1}{2} \left(\frac{c}{54000} \right)^2 \cdot \frac{\text{Sin } (1-d)}{\text{Cos } l. \text{Cos } d} \end{aligned}$$

REDUCTION TO THE MERIDIAN.

700. Using the previous notation and the triangle APZ , and putting z_1 for the Meridian Zenith Distance and r for the Reduction, we have $z = z_1 + r$ and

$$\begin{aligned}\cos z &= \cos p. \cos l_1 + \sin p. \sin l_1. \cos P \\ \text{or } \cos (z_1 + r) &= \sin d. \sin l + \cos d. \cos l. \cos P \\ \text{But } z_1 &= (1-d) \quad l \text{ and } d \text{ being supposed of the same name}\end{aligned}$$

$$\begin{aligned}\text{Therefore } \cos z_1 &= \cos (1-d) = \cos l. \cos d + \sin l. \sin d \\ \cos z_1 - \cos (z_1 + r) &= \cos l. \cos d - \cos l. \cos d. \cos P \\ &= \cos l. \cos d (1 - \cos P)\end{aligned}$$

$$2 \sin \frac{1}{2} (2 z_1 + r). \sin \frac{1}{2} r = \cos l. \cos d. 2 \sin^2 \frac{1}{2} P$$

But $\sin \frac{1}{2} (2 z_1 + r) = \sin z_1$ nly, and $2 \sin \frac{1}{2} r = \sin r$, (r being small)

$$\text{There } \sin z_1. \sin r = 2 \cos l. \cos d. \sin^2 \frac{1}{2} P$$

$$\sin r = 2 \cos l. \cos d. \operatorname{cosec} z_1. \sin^2 \frac{1}{2} P$$

Hence the rule.—Add together the Log from Table 70 ($2 \cos l. \cos d \operatorname{cosec} z_1$) and the Log Sin Square of the Hour Angle ($\sin^2 \frac{1}{2} P$); the sum is the Log Sin of the Reduction ($\sin r$).

701. Using the notation of (700) and putting r_1 for the 1st Reduction and r_2 for the 2nd Reduction, we have from 700

$$2 \sin \frac{1}{2} (2 z_1 + r). \sin \frac{1}{2} r = \cos l. \cos d. 2 \sin^2 \frac{1}{2} P$$

$$\text{or } 2 \sin (z_1 + \frac{1}{2} r). \sin \frac{1}{2} r = \cos l. \cos d. 2 \sin^2 \frac{1}{2} P$$

$$2 (\sin z_1. \cos \frac{1}{2} r + \cos z_1. \sin \frac{1}{2} r) \sin \frac{1}{2} r = \cos l. \cos d. 2 \sin^2 \frac{1}{2} P$$

$$2 \sin z_1. \sin \frac{1}{2} r. \cos \frac{1}{2} r + 2 \cos z_1. \sin^2 \frac{1}{2} r = \cos l. \cos d. 2 \sin^2 \frac{1}{2} P$$

$$\sin r + 2 \cot z_1. \sin^2 \frac{1}{2} r = \frac{\cos l. \cos d. 2 \sin^2 \frac{1}{2} P}{\sin z_1} = \sin r_1$$

$$\sin r_1 - \sin r = 2 \cot z_1. \sin^2 \frac{1}{2} r$$

$$= \frac{1}{2} \cot z_1. \sin^2 r_1 \quad (r_1 = r \text{ nly})$$

$$2 \cos \frac{1}{2} (r_1 + r). \sin \frac{1}{2} (r_1 - r) = \frac{1}{2} \cot z_1. \sin^2 r_1$$

$$\text{But } \cos \frac{1}{2} (r_1 + r) = 1 \text{ nly and } 2 \sin \frac{1}{2} (r_1 - r) = \sin (r_1 - r) = \sin r_2$$

$$\text{Therefore } \sin r_2 = \frac{1}{2} \cot z_1. \sin^2 r_1$$

Hence the rule.—Double the Log Sin of the 1st Reduction ($\sin^2 r_1$), add to it the Log Tan of the Meridian Altitude found ($\cot z_1$) and the constant 9.6990 ($\log \frac{1}{2}$); the sum (rejecting tens) is the Log Sin of the 2nd Reduction ($\sin r_2$).

$$\text{Also } r_2 = r_1 - r, \quad r = r_1 - r_2$$

Hence the 2nd Reduction is to be subtracted from the 1st Reduction.

W. H. BOLT.

Nautical Academy, 10 King Street, Tower Hill.

THE NORWEGIAN EXPLORING EXPEDITION.

Reikiavik, July 27.

IN continuation of our last account, we hear that the expedition has been not at all favoured by the weather. Since it left Christiansund, June 27, it has met with no less than five storms (wind velocity 45 miles an hour); two in the "Lightning" channel early in July, one at Thorshaven, one north of Faroe, and one at the Westman Islands off the south coast of Iceland. It has been only in the short intervals between these storms that any deep-sea work has been done. The last days of June were fine, so the expedition sounded, dredged, and trawled off Christiansund on the bank called "Storeggen." Here the fauna was quite Atlantic; on the outer edge of the bank the water deepened to 800, 400, and 500 fathoms, and the ice-cold water was met with, yielding an Arctic fauna. Two large specimens of an *Umbellularia* (the same as earlier) were found with a new starfish, and an animal which is quite new to the naturalists on board. Of smaller organisms there were also several new ones.

In lat. $63^{\circ} 10' N.$, long. $1^{\circ} 30' W.$, a sounding in 1,050 fathoms gave a temperature under 32° below 300 fathoms. The *Vöringen* had to leave this station to refit, as a sea had carried away the two fore-hatches. The course was shaped for Thorshaven, where the expedition stayed eight days to refit (July 8-15). The stay there was very interesting, especially for the geologists. The formation of caverns at sea level was an operation visible in all stages of progress. In the zeolite caverns of Nsalsö a rich harvest of minerals was secured.

The inhabitants of Thorshaven received the expedition very hospitably, and remembered with great pleasure the stay of the *Lightning* and *Porcupine*.

After a trip round the main Island to Westmanhaven the *Vöringen* left Faroe, July 16, and steered for its last station. Bad weather brought work here to a speedy conclusion. However, a series of temperatures was obtained, indicating ice-cold water at a depth of 300 or 400 fathoms. On the north-eastern corner of the Faroe Bank the depth increases very rapidly. In lat. $63^{\circ} 22' N.$, long. $3^{\circ} 30' W.$, soundings gave 1,180 fathoms. A series of temperatures gave $32^{\circ} \cdot 4$ in 400 fathoms, $31^{\circ} \cdot 8$ in 500 fathoms, and the bottom temperature was $29^{\circ} \cdot 8$. In lat. $63^{\circ} 55' N.$, long. $7^{\circ} 10' W.$, $30^{\circ} \cdot 2$ in 677 fathoms; in lat. $63^{\circ} 3' N.$, long. $10^{\circ} 15' W.$, $37^{\circ} \cdot 2$ in 256 fathoms. Farther west the bottom temperature was found to be $46^{\circ} \cdot 2$. Bad weather prohibited dredging, so the course was laid for Reikiavik, but heavy S.W. winds and sea made the progress very slow. July 22, Iceland was made, but in

the afternoon the weather got so wild and thick that shelter was sought at the Westman Islands, a group of small islands off the south coast of Iceland. Here a stay of three days was made; during one of them there was a heavy gale, in which steam was kept up. The visit here proved very interesting. The whole of the islands are volcanic, a large old crater, with perpendicular walls 400 to 500 feet high, is visible; one side is standing, the other has been washed away by the sea. Two miles off is a more recent cone, 770 feet above sea level, in full preservation, with a hollow 58 feet deep on top. The base of the cone is lava: the cone itself, whose outline is beautifully geometrical, is composed of loose stones. The sea-birds are very numerous, living in the countless hollows in the cliffs, where they were hatching at the time of the visit. Whales, large and small, were about the ship.

Westmaney was left July 26, and Reikiavik reached that evening. On the south-east coast of Iceland the current was very strong to the eastward, and from Cape Skagi to Reikiavik its violence was fearful.

The Icelanders reported that they have very seldom had so bad a summer as this one—perpetual storm and rain. This has not been favourable to the expedition except as regards meteorology. In this branch hourly observations have been regularly taken when at sea.

The expedition was to stay at Reikiavik five or six days for coaling, and for magnetic base observations. Hardly any magnetic observations have been obtained at sea, the weather having been so boisterous. It was intended to give up making the circuit of Iceland (the ice on the north side went away in June), and to take up a line south of Iceland and then straight across to Norway about to Namsas. The scientific staff is very well contented with the results gained, in spite of the bad weather.

THE ROYAL NAVY.—At great expense the whole of the training-ship establishment is to be done away with after having been in existence close upon 20 years. A college is to be built on shore for naval cadets, and a committee has been appointed to select a site for the new establishment. The committee, which consists of Admiral G. Greille Wellesley (chairman), Captain G. Curme, R.N., Captain W. E. Gordon, R.N., Dr. James Donnett, R.N., Dr. John Sutherland, R.N., and Paymaster G. Grandidier, will visit Devonport, Dartmouth, Weymouth, Portsmouth, Anglesea, and the Isle of Wight.

ON SEA AND LAND.—RECOLLECTIONS OF A SAILOR.
THE CRUISE OF THE "ARETHUSA," &c., &c.

CHAPTER I.

MYSELF AND MY SISTER KATE.

I WAS about to begin my narrative by stating that I recollect it blew a furious gale on the early morning of my birth, but as my readers might think, however precocious I may have been as a child, these recollections could not carry me just so far back as the time when I was launched, I must correct myself by remarking that our family circle used to tell me so often of the awful storm which then raged that it has ever since been as vividly impressed on my recollection as it would have been had I known all about it from my own knowledge. But had I commenced with so great a blunder, I should only have exemplified for the thousandth time one of the failings of our frail humanity.

Everybody must have met people who, having heard an incident repeatedly related, were apt to believe that it came within their own observation; and almost every day of our lives we meet with men who think they have performed some remarkable feat, and relate its performance so frequently and circumstantially that in the long run they believe it to be true, although it never had any existence. That my birth was a fact, there can, however, be no doubt; although my own recollections about it must be very questionable.

Therefore, as I desire to be strictly accurate throughout, I shall give the circumstances of this important event, as told to me by my sister Kate, who was a young lady, or a girl, just as people like to call her, of great veracity.

Kate had more to do with me than any other member of the family; by her hands I was washed and dressed, and sometimes cuffed, but only when I thoroughly deserved it—which I frequently did—for she was the gentlest of creatures; and she, too, cut out, sewed and fitted on me my first inexpressibles.

The manse—our father's home—stood not far from the brink of a high cliff overlooking the sea. An old ivy-clad castle, whose "Laird" had allowed a portion of the stones of its ruined walls to be used by the parishioners for the erection of the manse, was within fifty yards of it; and the house when finished was presented to my father, their minister, on his marriage, some seventeen years before I was born.

The parishioners were chiefly owners of small coasting vessels, and fishermen; hardy and industrious men, but very poor. They had

however, managed, partly by subscriptions and partly by their own labour, to build for my parents a substantial two-storied house. This granite-built manse, which had to that time effectually resisted every gale, lost all its chimney pots, and had two of its windows blown in, on the eventful morning of my birth.

I was the youngest of eight children, and as my father's stipend was only £100 per annum, hardly sufficient to make the two ends meet when there were fewer mouths to fill, it was not to be expected that I should be welcomed into life with any marked rejoicings. But "the gale it whistled, the tempest rolled, and the dolphins bared their backs of gold," just as they appear to have done according to the old song; and there never was heard such an "outcry wild" as, on this special occasion ushered to life, if it did not welcome, another "ocean's child."

The day and date of this important event cannot be a matter of any consequence to my readers, but it must have occurred during the depth of winter, for Kate frequently told me that when the window of my mother's bedroom blew in, the sleet and snow were driven by the hurricane right upon the bed where she lay, and all but brought to a very premature conclusion my own existence. To make matters worse, I had come into the world sooner than was expected, and there was no doctor in attendance—a matter, perhaps, not for regret, as the village midwife did quite as well, and at much less cost.

But the awful gale, my premature appearance, and the absence of the doctor, combined, made such a lasting impression on the inmates of the manse, and were so frequently talked about in our family circle, that it is not surprising I should have regarded these events as within my own recollection. My own actual remembrances, however, extend very vividly to the time when Kate dressed me for the first time in a suit of blue flannel cloth, her own handiwork, made, I suspect, from the same roll of stuff which had supplied her and her sisters with their winter petticoats. But the suit, such as it was, was wonderfully gratifying to me, for I now resembled the sailors and fishermen amongst whom it had been my delight to mingle. My trousers, I recollect, were wide, straight in the legs, just like theirs; and with the small loose jacket of the same material, I was every inch a sailor before I had reached the mature age of five years.

My mother was a thorough economist. She had need to be, poor body, with her large family and limited means; and Kate's mode of rigging me gave her great satisfaction. Mother and son were, therefore, equally satisfied with her handiwork, the former more so, for she then knew what I did not—that the blue flannel came not merely from the same roll as the petticoats, but had been used for the petticoats before it had been "made down" into my first suit of jacket and trousers.

MY FATHER, OUR KIRK MANSE AND VILLAGE.

My father was the most generous-hearted of men—as fine a specimen of the old school of Presbyterians as ever I knew, and one of those grand but humble men who would have sacrificed his life for the maintenance of his religious independence as readily as his forefathers had done before him during the massacre of Glencoe. I recollect him, as distinctly as if it had been yesterday, walking down on a Sabbath morning from the manse on the cliff to his place of public worship at the end of the little valley, where it stood in the centre of the village on the beach, near the base of a low shelving promontory; with his black gown and cambric “bands,” and the villagers turning out to bow or curtsy to him as he passed on his way to the “kirk.” Nor can I ever forget his sermons. They were the beautiful but simple doctrines taught by the founders of the Christian faith, and were propounded by an eloquence from the heart, of which we have now too few examples.

Although the manse was one of the plainest and roughest of buildings, the ground attached to it, sloping down into a sheltered valley, was a lovely spot—a remarkable contrast to the barren cliff behind, on which the manse itself had been erected. Sheltered from the north-east winds, the garden produced not merely all the vegetables requisite for the family wants, but fruit in abundance; while it was stored with evergreens, especially the rhododendron, and contained many of the prettiest and sweetest of our southern plants.

The path which led from the wicket-gate at the lower end of the garden to the village and the kirk, was so thoroughly sheltered from the sea and winds that beautiful wild flowers grew about it in great luxuriance and abundance. Nor was the village itself unworthy of notice. Unlike most of the fishing towns on the Scotch seaboard, where the houses stand ranged along an open beach, in the case of our town a small island, forming with the peninsula the harbour, afforded shelter sufficient to allow the trees behind, and within one part of our village, to grow to a much greater height than is usually the case on any seacoast.

The tallest and most luxuriant of these were to be found around the “kirk yard;” and over many of the moss-covered tombstones there had grown small though graceful weeping willows. The kirk itself, with its ivy-covered tower, had been built, for more than a century, out of granite rock and some of the large pebbles found on the beach; those having been cemented together by lime made from sea-shells, its walls were destined to endure almost as long as the rocks from which their stones had been hewn.

It was the only place of worship in the village, but though it contained room for all the inhabitants it was always full—the village itself being

almost entirely deserted during the hours occupied in the morning and afternoon services. In the evening, the best educated of the young men and women, including my eldest sister, Mary, taught Sunday schools; and when the hours of attendance were over, family prayers might be heard in every household. I recollect that on these occasions the villagers' songs of praise, though not so beautiful and melodious, sounded in my boyish ears far sweeter than the music I have since frequently listened to in many gorgeous cathedrals.

In the manse no cooking was allowed on the Sabbath day beyond boiling the pot for the children's porridge and heating a kettle of water for breakfast and tea. Everything else had been prepared the previous day. It is true that, with a stipend of only £100 a-year, and ten people to feed, clothe, and educate out of that modest sum, we could not expect much else: but had our means permitted more substantial or dainty dishes, neither roasts nor stews would have been allowed to be cooked within the manse on the day set apart for rest and prayer. Nevertheless, although we had not much on any day beyond oatmeal prepared in different forms, vegetables, broth, and sometimes boiled beef—one day hot, the others cold—we had now and again a "hen," after it had lived too long to lay any more eggs; and there were plenty of mackerel and herring when the weather was favourable. Besides, the fishermen frequently brought to us "Solan" geese when they were in season from Isla-Craig, so that we had enough for all the comforts, and at Sacrament time could provide some of the luxuries, of life: thus by adapting our expenditure to our means, we were "passing rich" on £100 a year.

Nor were my brothers and sisters ever shabbily or scantily clothed. Indeed Kate, who was my favourite sister, and who was just springing into womanhood when I was first attired in the trousers of her make, had few to equal her in the neatness of her attire. The Laird's daughters could not match her in the grace, and I might say elegance of her Sunday dress, though far less expensive. But Kate was one of Nature's beauties, and although every article she wore was of her own making-up and of the cheapest materials, the finest lady in the land could not have made herself more genuinely attractive than she. Then, Kate was not merely an apt scholar and expert sempstress, she was likewise a good house-keeper and capital cook. She could boil our porridge and make our oatmeal cakes to perfection. Nor were the manufacture of rolls, currant buns, cookies, and short-bread beyond her reach. Tough old hens, and tougher cocks, became tender under her manipulation; and even Solan geese were deprived of much of their rank flavour and oily taste by her knowledge of the art of cookery.

What a fine wife and mother Kate would have made, compared to those young women of the present day who wear cockatoo hats, and

close-reefed skirts ; and with studding sails at their sterns, flirt on " rinks " all day long, instead of learning how to " keep house ! " No wonder that " professed cooks " are saucy when young mistresses are ignorant ; nor need we be surprised that homes are miserable, and husbands too frequently ruined by extravagant and handless wives.

KATE GOES IN SEARCH OF WILD FLOWERS.

But, alas ! Kate never became a wife. Amongst her other accomplishments she had picked up the art of painting, and when not otherwise employed, devoted her spare hours to drawing and colouring flowers from Nature. I was old enough to recollect that some of these were very pretty ; but I did not then know that they found a ready market in Edinburgh and Glasgow, and that the proceeds, not merely provided her with the dresses she wore, but left something over to give away to the poor of the village. Her favourite sketches were made from ferns and wild flowers ; and her long walks in search of them afforded her health and recreation. Frequently she would be away for hours together, wandering along the cliffs and through the gullies and glens to find a fern with a peculiar leaf, or a wild flower of unusually variegated colour ; and though she sometimes did not return to the manse until after sunset, she was always back in time for family prayers, so that her long wanderings never gave our father or mother any uneasiness.

But one summer evening Kate did not make her appearance at family worship, and I could see by my father's countenance that he was a good deal disconcerted. Prayers were delayed half-an-hour longer than usual in the hope, and, indeed, full expectation, that she would by that time have returned to the manse ; but when the family had gathered for worship, and my father saw that there was a spare Bible on the table, and that Kate's chair was empty, he asked very uneasily if she had not returned, and if anyone knew in what direction she had strolled that evening.

Through a branch of the small valley I have described there ran a small but rapid trout stream, which had its chief source of supply from a deep pool about five miles distant from the manse. The pool itself derived its own supply of water from various still smaller rivulets, which were dry in summer, except after heavy rains, when they fell in little cascades over the low but somewhat precipitous cliffs, which formed three sides of the pool.

It was a lonely but beautiful spot, and when the upper streams overflowed and formed miniature waterfalls, gurgling through the stunted trees, brushwood, and innumerable wild flowers, and over rocky channels, there were few places, even in the highlands of my own rugged but grand fatherland, which could afford more pleasure to the lover of

Nature, or more variety, corresponding with its extent and scope, for the pencil of the artist or the theme of the poet. My recollections of the spot are now as clear and vivid as if I had visited it yesterday. From the pool to its estuary at the small bay forming the harbour, I was familiar with every rock and almost every pebble that lined or impeded the gurgling stream. On many of the rocks I had frequently sat for hours, watching the trout as they frolicked amongst the stones, skimming through some silvery rivulet, or pouncing out of the water to catch a fly which had placed itself within the reach of temptation, and then diving with its prey to a deep hiding-place under the lee of one of the larger pebbles.

But I must go back to the story of my sister Kate. I have said that one evening at prayer-time she was missing.

Prayers concluded, and Kate not having made her appearance, we all became anxious about her; my father and mother nervously so; and no one thought of going to bed until she came home. But dear, dear sister Kate never came home again. We all sat for an hour after family prayers, in foreboding silence; and, as time wore on, our anxiety and suspense increased in intensity. At last, when the old Hall clock struck the midnight hour, in tones seemingly more loud and solemn than ever it had done before, my father rose from his chair, and beckoning my eldest brother Peter to him (who, employed in the drapery establishment of a neighbouring town, was then at home for his holidays), half whispered in his ear, "Peter, I am getting very uneasy about Kate." His lips quivered as he spoke, and his hand trembled as he pulled the spectacles from his eyes—for his Bible was still on the table before him, though he had evidently not been reading much during the last half-hour.

"Peter," he continued, his hand trembling still more as he put his glasses into their case, "Something serious must have happened to Kate, or she would have been home long ere this." And, we were all anxious, as none of us knew in what direction she had gone. Then, turning to my mother, he remarked that she would better not think of waiting up for her any longer, and that he and Peter would walk down to the village, and inquire of one of the Kirk elders about her, with whose family Kate sometimes spent an evening.

But though my mother sent the younger members of the family to bed, an order they reluctantly obeyed, and did not sleep when they got there, she would not go to bed herself, and insisted on sitting up until her husband returned from his inquiries in the village.

KATE GOES HOME.

I was then a boy in the tenth year of my age, and, though the youngest in the family, I resolved to accompany my father and Peter. Kate was

my darling sister. She had nursed me, and washed me, and clothed me. She had, indeed, been more than a mother to me, for though my mother was a kind-hearted woman, her attention had been more directed to household matters, and to the training and education of the older branches of the family than to myself, in which she was assisted by my eldest sister, Mary, leaving Kate, who was next to Mary, to look after me, which she had done from my infancy.

"Let me go with you and Peter. Pray do let me go!" I said, almost imploringly, to my father. "I think something serious has happened to dear Kate, or she would have been home long ere this." Young as I was, I had my forebodings. I knew even then the danger of wandering about the low banks of some portions of the stream or "burn;" and knowing that though her favourite walk was along its banks, she sometimes went as far as the large pool, where the banks, being very steep, were consequently more dangerous, a feeling had caught hold of my young mind that something serious had happened to her.

I did not venture to tell my father what I thought, but when he reluctantly allowed me to accompany him and my brother Peter, the fear was deeply impressed on my mind that my dear sister, while in search for wild flowers, had slipped from the high banks and been drowned in the pool.

When we reached the Elder's house, all the members of it had gone to rest for the night, and there was the most perfect solitude in the village. Indeed, we did not meet a single person on our way, although his house was situated at the extreme end or close to the beach. Its inmates were deeply interested, but knew nothing about Kate, except that she had been there in the forenoon, and had incidentally remarked that she intended "after tea" to take a walk along the burn as far as the pool, in search of a particular description of fern of which one of the Elder's daughters had shown her an incomplete and imperfect specimen.

We thus obtained a clue to our further search; and as the moon was at its full, and as the long summer evening favoured our walk in that direction, we traced the source of the stream to its source at the pool. But our labours proved of no avail. Although we called at many of the cottages on its banks where my father was intimate with their inmates, and roused them from their sleep, none of them, though all were ready to lend a helping hand, could tell us anything about Kate, except a farm boy, who said that he had seen "Miss Katherine" when returning from his work, after six o'clock the previous evening, walking [towards the falls.

The direction she had taken was now clear to us. We resumed our search with renewed vigour, but with the most sad and gloomy fore-

bodings. However, no further trace of her could be found, and we returned to the manse about five in the morning still hoping to find her there.

My mother was seated in the room where we had left her. My three sisters (my other brother, Alexander, who was a clerk in an office at Glasgow, and a younger brother, Jamie, were absent) left their bedrooms whenever they heard our knock at the door, intensely interested to know if Kate had been found. But when it was seen that Kate was not with us they gave way to despair. Hope, which clings to us like some living, invigorating messenger of comfort, when everything else has gone, seemed on that occasion to have vanished. The manse that sad morning was as full of the lamentations for the dead as if Kate had left us for ever. And so she had—although two days elapsed before any confirmation of her melancholy fate reached us. Her continued absence and the forebodings of her fate spread with lightning speed throughout the neighbourhood, and especially in the village where she had been so great a favourite. The whole district felt interested. Every villager seemed to have lost a friend. Many of the fishermen ceased their occupations that morning to go in search for poor Kate. Most of them had known her from childhood; she had taught their children, and had frequently been a consoling angel to their wives when death or even when minor afflictions had visited their humble homes. The young men, too, of the better classes, more than one of whom had been made happy by her smiles, if they could not hope for her affection, joined in the search. Mothers and daughters—for not one of them had ever been jealous of her—lent a hand in the search; while the master and all the schoolboys of the little academy, where I was then having my education, forsook their duties for the day to assist in the discovery.

But though the fishermen spread their nets in the "big pool," and searched every nook of the stream from its source to the sea, and even along the small bay, their exertions were of no avail. Messengers were sent to the neighbouring towns, and every valley was explored, but all in vain.

The second night in the manse was one of still deeper despair, and earnest were the prayers that evening of my good old father that God would restore to him his darling daughter. But the grave—be it in the earth, the lake, pool, river, or ocean—never gives up its dead to life again; and all our researches had failed to find my dear sister in the land of the living.

Peter and I, with many of the villagers, continued our search during that long, long second night. Our father was too infirm and too broken-down to accompany us any distance from the manse, but he wandered about the village and the banks of the burn, peering into every nook

and crevice of the clear though rugged trout-stream, in search of all that was mortal of his beloved daughter. This one thought, combined with resignation to whatever might be the inscrutable act of Providence in regard to his lost child, occupied his whole mind and soul. Though his reason in all other matters seemed to have for the time left him, he was still the man and still the Christian—two of the grandest feelings of our frail and ever-erring humanity remaining vigorous and clear—a father's affection for his child, and his duty to bow submissively to the will of God.

The second night's search proved equally futile. Great was the emotion and terrible the suspense, although still mingled with hope, which clouded every mind that evening in the manse. More solemn were the prayers, but yet there was no repining, not even when the dawn of the morning of the third day brought no tidings of the lost one. But the day had not far advanced, when a group of men, carrying a burden on a stretcher, and winding their way up the narrow pathway which led to the manse, told the sad tale. Kate, when endeavouring to reach one of her favourite wild flowers on a precipitous portion of the steep banks which surrounded the pool, had fallen into the water, and had been drowned! The stream then, much higher than usual in the summer season, had washed her body into a nook, below some overhanging brushwood, nearly three miles from the place where, by the traces of her struggles, she had evidently fallen into the pool; there her body had lain in shallow water for two nights and days unseen. But the body was as fresh as if it had been only a few hours immersed in the stream. One of its hands still grasped the wild flowers, and the countenance was as beautiful and placid in death as ever it had been in the full bloom and vigour of life. It still looked so like the loving, living reality, that when the rough, but warm-hearted fishermen, who had carried the body to the manse, laid it down to rest by the side of her own favourite flower-bed, on the little lawn before the hall door, I threw my arms around the neck of all that was mortal of my dear sister, and felt that I should be glad to be laid by her side in the grave.

If there is one region beyond the grave brighter and fairer than another which our Great Creator has appropriated to the purest of those persons from earth who are to be for ever blessed, every one who knew my long lost sister Kate must feel with me that she has found her everlasting abode in the happiest of these glorious and imperishable worlds. And, if from amongst the best and fairest of our race God chooses angels to adorn that happy land, she must now be one of them.

CHAPTER II.

I MORALISE THEREUPON, THEN DESPOND, AND THEN RESOLVE.

I shall not attempt to describe the scene in the manse when it became known that Kate was drowned, and that her body had been found. Although "hope deferred maketh the heart sick," no relief was afforded to the afflicted family circle from which the loved one had been so suddenly taken away, when there was no longer any doubt about the sad reality. She was gone, and gone for ever; and all that was left of her were those mortal remains, which however beautiful even in death, must soon be hurried from our sight.

One does not wonder that the ancient custom of embalming, to preserve the bodies of the dead, should have so long prevailed, for who could wish to hurry from their sight a form so lovely as that of my sister Kate as it lay on the lawn where the fishermen had gently laid it, amidst the flowers planted by her own hands? Tears might have afforded some relief to my parents, but neither wept. They were as pale and almost as motionless as the body of their dead daughter; but their anguish was terrible. A look of the wildest despair, blended however with resignation, was the only sign of my father's sorrow, although the heavings of my mother's breast, as if her heart was about to break, too plainly revealed her subdued anguish. My sisters found relief in floods of tears, while I, too young to understand the depths of a parent's sorrow, was surprised at their apparent calmness.

The grief of the villagers was second only to that of the inmates of the manse; and nearly the whole male population, including the Laird and his two sons, showed their respect for the memory of Kate by following her body to the grave. Nor was the grief of the women and children less conspicuous, for they gathered in groups round the kirkyard, many of them in tears, while all that was mortal of one whom they had loved was laid in its last resting-place; the little children sprinkling wild flowers—all they had—over the fresh mound of earth that marked her grave.

Kate's death created in me for some time afterwards a gloomy foreboding. I wondered why the Great Dispenser of events should have taken away one so young and beautiful, while the old, infirm, and useless were left in the enjoyment of life. What was the use, I thought, of striving to do good if all our efforts were to be summarily cut short, as Kate's had been? And, what was the good of life if it was only to end in the grave? I could not then realise the consoling thought of life being only a pilgrimage, or state of preparation for one which was to endure for ever. I had already begun to philosophise about life and a state of things hereafter with an inclination, like too many youths of the

present day, to repudiate everything in the Christian religion I could not understand; taking nothing for granted which could not be proved. But, as I grew older and wiser, I learned that there were many things, not merely in the doctrines of Christianity, but in nature itself, and especially in connection with life and reason, which were beyond the power of any man, however learned, to comprehend, and far beyond the reach of our limited senses and faculties. What, for instance, can the wisest of us know about Omnipotence or Omnipresence. And is it not as conceited and arrogant for us to deny their existence, as it would be for a race of blind men, who had never heard of men who could see, to repudiate the existence of such a sense as sight? Would not the fact of a small organ in the head, which reflected to the mind the knowledge and minute form of objects beyond our reach, be as incomprehensible to them as a Being of a higher order than ourselves, whose senses embraced the knowledge of all our actions, and our most inward thoughts, is to us? Just as much. Yet, while we should laugh to scorn and denounce as incomprehensible idiots the race of beings with one sense less than ourselves who argued that sight was an absurdity, we too frequently repudiate the existence of a power or race of beings with more faculties and senses than we possess, simply because we cannot comprehend them any more than the blind man cannot understand the sense of seeing.

Are we not after all as ignorant as we are vain?

What do we know about those myriads of worlds floating in the azure and endless space above our heads, except that they are globes in density equal, and in dimensions far greater, in most instances, than our own? Beyond that we know nothing about them. What even do we know about the blades of grass beneath our feet, or the shrubs and flowers and trees around us, except that they flourish in spring, bloom in summer, and fade with the winter's storms? *Nothing*—practically nothing—except that there is something in the soil, the air, the heat, and the cold, which alternately makes them grow and wither, and at last, like ourselves, decay. But as all these are reflections, and not recollections, I must revert to my narrative.

The sorrows of youth are of short duration. I had now to turn my attention to the means of living, as my parents could not afford to keep me at home in idleness. I had, as far as their income allowed, the opportunity of obtaining a solid and useful education, but I did not take advantage of it to the extent I ought to have done. My inclinations were strongly in favour of a seafaring life, and, consequently, my time was more occupied in boats, and short excursions with fishermen, than with my school-books. My mother frequently complained that my clothes were soiled with tar; and the schoolmaster, though he looked

me up every Saturday with an extra lesson to learn, to make up for my absence during the week, made no more impression upon me than the parental lectures. I was resolved to be a sailor, in spite of all they said and did; and, considering book learning a mere waste of time, I would not apply myself to it.

THE "ARETHUSA," HER OWNER, SKIPPER AND CREW.

The landed property of the Laird, which he had inherited from his father, consisting, as it did, to a large extent, of rock and heather, was of too limited an extent to maintain himself and family, or at least for his wants. He had consequently invested a little spare—and some borrowed—money in ships, chiefly small coasters, which had proved successful, so that he was, at the time to which I refer, a thriving shipowner as well as a landowner.

In the summer months the largest of the Laird's vessels, a brigantine of about 150 tons, made a voyage from Greenock to Newfoundland with a general cargo, but chiefly coals, and thence took cargo, chiefly consisting of salted cod-fish, to Spain or Portugal, and thence with wines, corkwood, and other cargo, back to the Clyde (Glasgow generally).

My father and the schoolmaster, having after various consultations, arrived at the conclusion that the best way to show me how much happier I should be on shore than at sea, would be to allow me, when I had reached the mature age of thirteen years, to accept an offer of the Laird's skipper of the brigantine, to take me as cabin-boy for a voyage to Newfoundland in his vessel, which bore the high-sounding name of the *Arethusa*.

But the *Arethusa* was far from the stamp of vessel which her name indicated—she was short and bluff-bowed—a regular feather-bedder when any attempt was made to drive her through the water. She had square sails on her foremast, and a spanker and gaff topsail on the main or after-mast. She had a large bust as figure-head, which the skilled carver, regardless of her name, had endeavoured to represent as a likeness of the Laird her owner; the only resemblance, however, between the bust and the original being a very large nose, which had been sadly bruised in course of time, and a very ludicrous attempt at spectacles, which the Laird always wore. The colour of the bust was not much out of the way, for the Laird and the figure-head were both of a brownish hue, except on certain prominent parts of the countenance, which was marked by some very suspicious red spots. The Laird himself was, in education, not much above the skipper, for he had been brought up to the sea, and had inherited his father's patrimony, when, on the death of his elder bachelor brother, he had reached middle-age, and saved a little money.

The crew of the *Arethusa* consisted of her skipper, a thorough old salt, who had been trained in the coal trade of the north-east coast of England, and had, many years previously, found his way south as mate of a coaster, which had been wrecked on the shores of Ayrshire. He swore foolishly and at times drank more than he ought to have done, though he was never what one would call really drunk—that is to say, he had, on his heaviest drinking bouts, always that amount of reason left which a certain free-liver was said to possess, when one night, dropping the latch-key of his door in his endeavours to open it, knew that if he attempted to pick up the key from the steps where it had fallen, he should likely place himself beside it; and very sensibly stood looking at the key until someone passed in the dawn of the morning, and picked it up for him. Before my father and the Laird, Captain Roughhead was always denouncing the evils of intoxication, so that they both considered him a temperate man, and a very proper person to take charge of an innocent youth like myself on my first voyage to sea.

The second person in the brigantine was an “only mate;” and though, by law, the responsibilities of the command would have devolved upon him in the event of the death of the master, he could neither write nor read; but I question whether the skipper himself could do much more in the way of penmanship than sign his name, for after I commenced my duties at sea, I had frequently to write letters to his dictation. The rest of the crew consisted of the cook, who acted also as steward and seaman, and performed other multifarious duties, not altogether within the line of either. There were three other seamen, one of whom could do a little carpenter's work, and another who could assist the skipper and mate in mending sails when necessary; while the third was “Jack,” pure and simple, upon whom the duty of pulling the skipper on shore, and other odds and ends devolved. At least, the jolly-boat, while I belonged to the *Arethusa*, was always placed under his charge; no doubt arising from the fact that when the skipper was drunk, which he frequently was during evening when in harbour abroad, “Jack,” though himself fond of a stiff glass of grog when he could get it, had sense enough to keep himself sober when he knew that he had to convey the skipper from the shore to the brigantine.

Thus our crew consisted of six persons, “all told.” Being only a supernumerary, I was not included in the number. I recollect them well; far better than I do the members of any of the various crews with whom I sailed in after years. First impressions are always the most lasting; and, as one grows older, the events of our boyhood seem to freshen our memory. They frequently look like the events of yesterday, while those of a year or two ago have faded away.

I think now I see old Captain Roughhead. He might have been, when I was placed under his charge, a man of about sixty-five years of age. If the brigantine had no resemblance to the name she bore, her skipper did not belie his name, for he was the roughest of the rough; but, withal, a kind-hearted, and, I think, an honest—though not all times a sober—man. He may have stood about five feet two inches in his stocking-soles, but what he lacked in height he made up for in breadth; and his head was large enough for his mate, who was one of the tallest, lankiest men I ever saw at sea; and, to boot, one of the stupidest. But he had the best of tempers; and when the skipper swore at him, which he frequently did, *Mr.*—we always addressed him as *Mr. Maconichie*, though known familiarly amongst ourselves as “Conchie”—invariably replied with a pleasant, though half-idiotic, smile, remarking to himself, “how funny,” a favourite expression of his. However, Conchie, though he could neither read nor write, was a thorough hard-working sailor; and when he clapped his hands to the topsail-halyards, stretching his long sinewy arms far above the others, the yard went aloft in gallant style. A windlass or capstan-bar bent under his swing; and we never required to use a fish-hook for the anchor, as Conchie, catching the fluke with the bight of a rope, soon brought it up to the level of the rail.

The other men much resembled those of their class of the period. Somewhat exacting, if not tyrannical, fond of spinning yarns, and fonder still of a glass of whisky or rum and water, when they could get it; economical at sea, but thriftless on shore; good sailors, but prone to a little skulking when they had a chance: they had strong faith in the Bible, even to a literal belief in the whale that swallowed Jonah, and in the navigation laws of Cromwell; but they were not very Christian in their views towards the sailors of other nations, especially the French.

I do not recollect their names—indeed, I question if I ever heard them—except that the cook was called Joe, sometimes “Slushey,” and the sailor who did any little carpenter work, had the soubriquet of “Chips,” while the sailor who occasionally assisted the skipper and mate in mending sails, was known as “Palmy.” I at first thought that was his real name; and I recollect getting a cuff on the side of the head for calling him *Mr. Palmy*, which he considered an insult, as it afterwards appeared that his soubriquet arose from the fact of wearing a “palm” when at work—a piece of leather strapped to the palm of the hand, with a flat thimble in the centre, to receive the head of the large needle used in the manufacture or repair of sails.

The places of abode on board the *Arethusa* were about as good as those in other vessels of her class, but that is not saying much for them; there were then no Acts of Parliament to regulate either the amount of space for the crew, or their safety or comfort. The fore-castle was barely

five feet in height between decks, and not much more than four feet below the beams, so that no one on board could stand upright in any part of it—not even Captain Roughhead himself, though I cannot recollect that he ever troubled himself to visit the forecastle. It was approached by a scuttle-hatch about two feet square, which had to be kept closed in bad weather, so that the place then would have been as dark as any dungeon had it not been feebly lit up by a small oil lamp, which had no cover to it. In other respects it was worse than most dungeons, for the only ventilation was through the scuttle-hatch; and as the hawsers, and other rough ships' stores, besides spare sails and numerous other odds and ends were stowed away in the forecastle, the space for the sailors' bunks or hammocks, and for their chests of clothes, was of the most limited description. At all times it was necessarily a dirty place from the character of the stores it contained, and the various duties—some of them unmentionable—performed in it; but in bad weather it was the most loathsome abode that could be imagined. Here, however, the crew of the *Arethusa* had to sleep, wash, dress, and take their daily food, except in fine weather, when most of these operations were, as might be supposed, performed on deck.

Nor was the cabin a very great deal better than the forecastle. This was close aft, or at the other extreme of the vessel; it was approached by a somewhat similar scuttle, although there was a companion-hatch over it; and, abaft that, there was a small skylight, which could be opened in good weather. On either side of this cabin there were two open sleeping berths, one for the skipper and the other for the mate. On one side of the fore-part of the cabin there was a sort of locker-room, which contained the dry provisions, such as biscuits, flour, oatmeal, sugar, tea, and a quarter cask of rum, taken on board in bond when the *Arethusa* made a "foreign voyage." This cabin or store—the sanctum of sanctums—was under the special charge of the skipper himself; and on the opposite side there was a similar space, which contained all culinary articles and crockery-ware, with a berth below the racks for the plates and dishes, where the cook and steward slept. As I was a supernumerary, a temporary sleeping place had been made for me athwart ships, on the lower part of the transoms; and though, of course, within the limits of the main cabin, it was open to it, like the berths of the skipper and mate. I had, therefore, no right to complain; for though my berth was an awkward one, especially when the *Arethusa* rolled about, it was much superior to the forecastle.

Such was the craft, her crew and equipment, in which I made my first voyage to sea from the little fishing village behind the island in my native county of Wigtownshire.

CHAPTER III.

I SET SAIL FOR MY FIRST VOYAGE.

I do not know that I have ever since experienced such rapturous delight as when I ascertained that the Laird and my father had given their consent to Captain Roughhead's proposal to take me for a cabin-boy. The *Arethusa* had completed her last coasting voyage for the winter, and was then at home, fitting out in the harbour for her annual foreign voyage, under the immediate direction of the Laird and her skipper. Her departure "abroad" was an event in the village, whose inhabitants were more or less interested in it, as the families of the crew resided in the place, and the Laird encouraged the shopkeepers and tradesmen by getting all the supplies for the voyage from them, except the "bonded stores," which were taken on board from the Customs at Greenock on her clearance for St. John's.

Close attention at school became out of the question when it had been decided that I was to make a voyage in the *Arethusa*, and the most of my time was spent on board during her equipment. I might have done a great deal more good for myself at school, but the tar-bucket had more charms for me than my school-books; and as I was of some little assistance in passing the spunyarn-ball to the riggers, as they served the shrouds and stays, my kind father, against the will of my mother, allowed me to have very much of my own way, although I was always expected to attend school for an hour in the forenoon, and make myself master of a lesson at the manse in the evening.

I recollect that many of the boys at school who had seafaring proclivities—and who amongst the boys of our seagirt homes have not—envied me, and wished that there were more vessels in the harbour where they could get the chance of a distant voyage and satisfy the natural yearnings of our boyhood to see foreign lands—yearnings much stronger than they are now, when distant shores can be so easily reached. But my supposed good fortune was something more than envied. My school companions looked upon me as one about to enjoy all the liberties of manhood, with salt beef and sea biscuits at my unlimited disposal, with the rights of talking to men as if they were my equals, and free from all the terrors of the schoolmaster and his cane, as well as the numerous necessary restrictions of boyhood at home. They little knew that all these were very light compared with the hardships and dangers of the sea, and the thralldom of the petty tyrants under whom they would require to serve and to obey, should they choose a seafaring life as a profession. But more of this anon.

It was a beautiful early summer morning when the *Arethusa* set sail on the occasion to which I refer, on her annual foreign voyage. Nearly

the whole village, but that is not saying a great deal, turned out to witness her departure. The Laird was, of course, there, and so were the members of his family, and also my father and mother and those of my sisters and brothers who were at home.

On that memorable occasion, I thought myself quite as much a sailor as did the First Lord of the Admiralty at Cherbourg, when arranging the British fleet in line to salute Her Majesty on her arrival in that famous roadstead. With my whiteduck-trousers, strapped tightly round my waist, striped shirt, loose blue jacket, and straw hat, with its extra length of blue ribbon, I looked every inch a sailor. But there was a big lump in my throat, and I think the cuff of my jacket found its way to my eyes when I parted with my good old parents; but if any tears had been visible, they were brushed hastily away. I recollect my feelings perfectly well, and though my movements were awkward, I had so far hidden my parting grief that the skipper whispered to my mother, greatly to her chagrin, that I cared less about leaving home for the first time than he did on parting with his wife on his 259th voyage to sea, coasting and foreign.

"Why, bless your heart, mam, when my father kicked me out the house at Shields, more than half a century ago, and my mother winked at it and said, 'It's all for his good a-going to sea,' I thought my heart would break. Yet, with all your fondling and kissing o' him, your youngster braves it out like a man."

But my mother's heart was too full to reply to this friendly historical episode of the skipper's own starting in life.

"I did not get the better of it," he continued, by way of consolation, "until the mate gave me a tarnation good ropes-ending to stop my blubbering. Now, you see, we won't require to do anything o' that sort wi' your boy, for he don't stand in need o' it. He's the right sort to make a sailor,—he is. I didn't think I was—and maybe I wasn't—yet I ha'e been a captain for more than twenty years; and when you see what I ha'e done, ye need na' be afeard about your son getting on at sea."

But the casting adrift of the rope moorings from the little jetty or quay-wall cut short this interesting colloquy, and sent every one on shore except the crew of the *Arethusa*, which hauling out to the roadstead, set her foretopsail jib and spanker, and with a light but fair wind, slowly left the harbour.

I did cry then, and it was no use to attempt to hide it; my tears had been bottled up to such an extent, that vent became necessary to afford relief. The village and harbour and their surroundings, it is true, had not many attractions beyond the manse, the ivy-clad church, the valley and the trout-stream. The ruined castle on the cliff and the bare granite rocks

on which it stood, presented few, if any, enjoyable features in the landscape; nor, with the exception of the trees around the churchyard and the few clumps of evergreens at the lower part of the village, were there any natural attractions to rivet one to the spot; but these were soon lost in the distance, and then nothing except the small sandy island, which seemed now to form a portion of a rugged sterile shore—cold and bleak even on a sunny summer's morning—was left for the eye to rest upon. Nevertheless, it marked the site of *home*, and that thought, now that I was leaving it, gave the bleak and rugged rocks a thousand charms.

But light and airy is the youthful heart. The rippling sea, with just sufficient wind to disturb its surface, sparkling bright and silvery in a noontide sun, naturally assisted to cheer me up; and when—strange as it now seems—our dinner, consisting of broth and a good lump of corned beef, was served out, the charm of a seafaring life in fine weather, and its accompaniments, fast took the place of home, and especially of school and its reminiscences.

All sail being now set, we made steady progress towards *Ilsa Craig*. As we passed close under its lee—so close that in one part we were only within a few fathoms of the precipitous rock—the skipper brought from his lock-up or store-room a most extraordinary-looking machine. I had never seen such a thing before, and at first could not understand what it was. It looked like a fowling-piece, but it was more than double its weight and little more than half its length, with a large bore, expanding something like the mouth of a small water-funnel at its end. Questioning in my mind its real properties, I thought it might be a patent description of pump; but the skipper soon deceived the impression that it was something connected with hydraulics by taking a flask of powder from his pocket, and pouring, as it seemed to me, the greater portion of its contents down the funnel or muzzle, and after that a lot of shot, ramming the whole down with a large piece of brown paper.

THE SKIPPER AND HIS CAULKERS.

What on earth, I thought, could the skipper be about; for I then saw it was a gun or cannon of some sort, or a combination of both, called, as I afterwards ascertained, a *blunderbuss*, a famous instrument in those days, kept for the protection of lonely mansions against the encroachment of robbers, and on board of small ships for the purpose of dispelling boat crews of pirates, then too frequently infesting portions of the African shores of the Mediterranean and the coasts of the Spanish Peninsula.

As the skipper had taken two or three rather stiff tumblers of whisky-and-water since we got under weigh—no doubt to drown his sorrows on parting with his wife for the 259th time—he was what one might call

not very sober ; or rather on the merry side of intoxication, and in the mood for a prank. What that prank might be was a matter of such grave doubts in my mind—for drunken men and loaded blunderbusses are not very fit companions—that I kept out of his way ; and when he ordered me to tell Joe to send him a “caulker,” after he had stuffed the muzzle of this strange-looking instrument with the wad of brown paper, I obeyed, but with considerable reluctance and doubt as to his intentions.

I did not know what caulker meant ; Joe, however, did ; and quietly remarked, as he handed to me a tumbler of whisky-and-water, that that was the fifth caulker the skipper had had since we sailed. Still, Captain Roughhead, in gulping it over, seemed to know perfectly well what he was about ; when, putting the blunderbuss to his shoulder, and pointing the muzzle to a perfect swarm of white sea-birds which covered a bluff point of the black rock, he let fly, with a sound which terrified me, the contents of this unwieldy and extraordinary weapon.

Whether it was the rebound or the five caulkers, or both combined, I cannot say ; but I recollect that after the skipper had discharged the blunderbuss he fell down with a thump upon an unmentionable part of his personage, which made the deck quiver.

“Conchie, you lang-legged lubber,” he exclaimed, as he attempted to rise, but which he could not do without assistance, “why the devil hav’nt you had the decks scrubbed ; don’t you see that the slush on them has tripped me up, and is so thick and slippery, that one might as well try to rise from a clean sheet of ice ?”

But Conchie, as he and Joe assisted him to get up, only smiled, and said, “How funny.” Another caulker, however, restored the disturbed nerves of the skipper, if it did not altogether restore his equilibrium ; and his idea of what was necessary to be done appeared to be clear enough. Ordering the foretopsail to be thrown aback, and the jolly-boat to be lowered, he next gave Conchie and Jack instructions to jump into it, and pick up the most eatable portion of the birds that had fallen beneath the blunderbuss.

It must have been a perfect scatterer, for no end of maimed, fluttering, or dead sea-birds covered that portion of the sea beneath the rock on which they had been seated. They were, however, all seagulls, not worth picking up, except two Solan geese, and these were brought on board, not, however, without a struggle, for they had been only maimed, and gave Conchie a job to catch them, showing fight as he stretched out his long arms to haul them into the boat, while he remarked for the twentieth time that day, “How very funny.”

Certainly the event appeared very funny to me, and I wondered if there were many more rocks on the sea where vessels stopped to shoot sea-birds.

We were, however, all delighted with the exploit, for as Joe understood the art of converting even a Solan goose into a savoury dish—no mean art—we all looked forward to an extra feast. The skipper was particularly jolly; the sixth caulker had not then had the effect of turning him from the merry into the stupid or speechless mood, so he began to recount to Conchie, Joe, and myself his exploits with his famous blunderbuss.

THE SKIPPER CAULKES TOO MUCH.

"I never miss," he said, and how could he in this case, for the birds covered the rock as thick as they could pack themselves. "I brought the riffs down"—referring to an attempted attack as he supposed of Riff pirates on the coast of Morocco—"about as thick as them birds, when they came off all of a heap to seize the *Arethusa* one calm night when on a voyage from St. John's to one of the Papish ports in the Mediterranean, where they won't eat anything but fish, or say they won't, at fasting times."

"Lor, bless your hearts, how they all ran when I sent a scatterer o' rather peppering nobbs among them, bigger than them shot I let fly at the gulls, and though big enough to make the Riffs jump and limp and take to their oars rather faster than they came, I don't think it killed any o' them. I hope it didn't, for you know," he said, "Tommy," turning to me as he spoke, "it does not become any Christian man to take the life o' his fellow-creature, though these Riff scoundrels would have cut our throats had they once got on board of the *Arethusa*."

"How very funny," said Conchie.

"Funny! what do you mean?" said the skipper, angrily, as he turned to his "only mate," for there is a time and place for everything. "What's funny about the thought of having one's throat cut on the high seas or anywhere else by a set of marauding scoundrels. Do you think if they had got aboard and tied your lang legs and arms to the main rigging, and then stuck you like a stupid auld sow that you are, maybe ripping ye up afterwards, there would have been ony-thing funny in a' that?"

Conchie felt rebuked, looked upon the occasion, on reflection, as a very serious one, for Conchie had been on board as a sailor during that memorable event, and had been since promoted; considered it on second thought no laughing matter, and expressed in all humility his matured opinion that the skipper's indomitable bravery had on that occasion saved them all from a terrible death, and the property of the Laird from unquestionable capture.

But, after all, there was something in the event, or "awful emergency

of danger," which the skipper now pourtrayed in such vivid colours that gave occasion to the only mate inadvertently letting slip his favourite exclamation. Indeed, as I afterwards learned from Conchie, in strict confidence, and, therefore, I ought not to repeat it now, the presence of the Riff pirates, which were supposed to be about to attack the *Arethusa*, was on that occasion somewhat questionable.

No doubt the *Arethusa* had been becalmed off the coast where these once notorious scoundrels were known to infest; but Conchie, with all his stupidity, had always been under the impression that the two boats which loomed in the distance amidst the haze of that moonlight night, one of which did all but sheer alongside of the *Arethusa*, were peaceable fishermen.

However, the skipper held so very decided an opinion that they were not, and he ought to have known much better than Conchie, that he let fly the scattering contents of the blunderbuss amongst them. As a breeze sprung up soon afterwards, and the *Arethusa* proceeded on her voyage, no one on board ever ascertained what they were or what amount of mischief the blunderbuss had done.

I must not, however, suppose that the skipper had as many extra caulkers on that occasion as he had when he related this remarkable episode of his bravery and the extraordinary effect of the brigantine's sole implement of defence or warfare, or that he magnified the danger, which people sometimes do when they imbibe exhilarating liquors; but I may add as a warning, to all skippers who drink too much grog, that they should be very cautious how they use their firearms, for had these men been fishermen it might have fared very hard with Captain Roughhead.

Conchie having eaten humble pie, and his skipper having given him a bit of learned advice about using hasty exclamations and inappropriate expressions, had another caulker, and then attempted to strut the quarter-deck in his ordinary steady gait, for it takes a good many caulkers to make a short and thick set man lose his equilibrium, or, rather, in nautical phraseology, the proper use of his sea-legs.

The fair wind had faded away to a very light breeze, but still in our favour, though the tide now and again got the mastery of our sails. Eight bells had been struck from beneath the little belfry on the afterpart of the companion-hatch; as it was the skipper's watch on deck, he continued to pace to and fro, sometimes steadying himself against the rails, at other times rather hastily gripping the main-shrouds, but continuing his whistle for a breeze.

Now and again he would hum a tune—not a very melodious one; but more frequently, when the whistling ceased, he held some conversation with himself in broken sentences, in which expressions such as—"blow'd

him," or "dash my buttons," or "who'd have thought it?" were frequently discernible.

We had now left Pladda light, off the south end of the island of Arran, a long way on our port quarter, and were steering for the Cumbræ heads, or rather the narrow bit of ordinary channel between them and Garrack head, the southernmost point of the Island of Bute. Whether two lights then marked the channel I cannot recollect; but the skipper saw two on a point where there was only one, and in his attempt to take the *Arethusa* between these two imaginary lights, he bumped her on the very shore or point where the one light had been placed as a warning for mariners to avoid it.

Happily the beach on which we bumped was a soft one; and though the night had become pretty dark for summer, the blaze from the lighthouse cast quite enough of light on our deck to enable us to see where we were and what we were about. The skipper was at first not very clear as to the exact locality, though he knew, or ought to have known, every sandbank and every stone on the coast; but all the crew perfectly understood where we had grounded, and as it was flood-tide, they also knew that we should float off without much or any damage; consequently, when the watch were roused and came upon deck, they took matters very leisurely, the mate remarking, as he might well do in this case, "How very funny."

But the skipper was in a towering passion, swearing against his ship, the lighthouse, the hydrographer, the sandbank, the tides, and everything else. Everybody and everything was to blame except himself. Had there been official inquiries by the Board of Trade in those days, and had one then and there been appointed to inquire into the cause of the *Arethusa* getting on shore, he would have proved to a demonstration that it was entirely the fault of the charts, or the lights, or the authorised sailing directions, so far as regards the proper set of the tides—any cause except the true one.

When the tide rose enough, the jolly boat was launched, and Joe, with Chips in her, had not much difficulty in pulling the *Arethusa* off the bank or sandy beach into the channel or fairway through the Cumbræes.

As the wind though still very light had veered round to the north-east and was against us going to Greenock, we shaped our course for Rothesay Bay, where we anchored in safety and without any further mishap.

(To be continued.)

CORRESPONDENCE.

SAFETY-VALVES.

To the Editor of the "Nautical Magazine."

SIR,—Your contributor, "Molecular Vortex," is again in error when he says the silent safety-valve, referred to in his communication, "is a complete syphon." If you refer to *Engineering* of the 25th December, 1874, it is there described as having means provided to prevent a vacuum in the waste steam-pipe. The Safety-Valve Committee, in their Report, gave no description of the valve, and the small engraving at the end of the Report, did not show the details connected with the apparatus.

He says, "The critic at the Board of Trade, whose acumen rejected this valve, showed himself an abler engineer than either the deputation or the Safety-Valve Committee, or both combined."

As we are the patentees and sole makers of the silent-valve referred to, it may safely be inferred that we would be familiar with any application on the part of the Committee to the Board of Trade to pass this description of valve. Now, strange as it may appear, we have no knowledge of such an application having been made, and not a single valve of that description under the Board of Trade survey. We have received no intimation that the silent-valve was rejected; and, certainly, we did not expect such an intimation, considering the Board of Trade rule, *not to pass or reject valves unless in the case of some particular steamship coming under survey*. No engineer or shipowner has applied to us with the view of fitting up the silent-valve on a steamer coming under survey, therefore your contributor must have drawn largely from his imagination for the facts.

We have been in communication with several members of the Safety-Valve Committee, and they desire us to say, that they never made application to the Board of Trade to pass the silent-valve, and had no correspondence with that Department on the subject; and that the silent-valve, after nearly three years' trial of it, has proved itself well adapted for the purpose for which it was intended.

"Molecular Vortex" then goes on to say that, "During the discussion this valve was put forward by the Committee, and by its chief promoters, Messrs. Rowan and Brownlie, and it was then distinctly stated within the Institution, that ten or a dozen of these valves could be seen working in and around Glasgow; six out of the ten were discovered and tested, and not one of them was spring-loaded."

It would certainly be very flattering to us to have such distinguished

engineers as *promoters* of our patent safety-valves; but we are sorry to inform you that his statement regarding promoters is the most unwarrantable stretch of inference imaginable.

When the Committee said that ten or a dozen spring-loaded valves could be seen at work about Glasgow they were a long way within the mark even in this early stage of our career as valve manufacturers. We publish no record of the users of our valves, and no one made application to us to ascertain where they could be seen, although we would have been glad to supply such information.

"Molecular Vortex" says that six valves *were* discovered and tested. The result of such a test is easily anticipated, and would be very singular indeed, when you take into consideration the person and the circumstances under which the test was conducted, and which had its origin in a desire to crush every legitimate attempt to dispute his supremacy.

Again, it is a sad fragment in the history of the Scotch Institution of Engineers that one of its members should be guilty of such gross ignorance and impudence—such as prompted him to report the result of his private test in opposition to the Committee appointed to investigate the subject. Had the Committee suggested the valve of "Molecular Vortex," we venture to say his opinion of the Committee's Report would have been very different to what it now is.

It is not so long ago since "Molecular Vortex" challenged the President of the Institution to test the merits of dead-weighting against spring-loading. You will also remember that the President declined to accept the challenge, doubtless considering, *as we now do*, that it would be no honour to be able to beat him. This challenge was accepted by the writer, and duly published in your paper, but for some reason or other "Molecular Vortex" has kept perfectly silent on the subject, apparently refusing to contest his own challenge.

"Molecular Vortex" says, "Some one had not the courage to read a paper before the Institution" on our valves; if this refers to us the reason is obvious; we are not members of the Institution, and should we become members, we certainly will not make the Institution a medium of advertising our patent valves. But if "Molecular Vortex" desires to know the extent of our *courage*, it amounts to this: we are not the least afraid to compete with him with any description of valve. We will even make one of what he calls his own valves, and with it dispute his supremacy. But, however, we cannot be so generous as the Board of Trade, to allow him to compete with half square inch per square foot of firegrate. We will limit the size to one square inch for each ten square feet of firegrate. We may thus be able to show that, while he is advocating large valves, he is making a virtue of his necessity.

Mr. Editor, there is just one thing it is desirable your contributor should explain, and that is quoted below in full.

“Whenever the pressure in the boiler has fallen 1 lb. below that at which the valve is loaded to blow off, the issuing current of steam between the two orifices will create a perfect vacuum in the chamber surrounding the valve, and this vacuum, acting over the area of the concentric chamber, will bring the valve back to its seat instantly.”

We have no hesitation in saying that the above description of the action of his own valve is one of the most marvellous creations of fancy ever penned, and coming as it does from the hero of 3,000 valves, it does not seem calculated to inspire Her Majesty's subjects with that sense of safety we are entitled to expect.

Yours respectfully,

DAVID COCKBURN & SON.

Clydesdale Safety-Valve Works,

Macneil Street, Glasgow, 7th Aug., 1876.

P.S.—We would suggest that you should make an engraving of Mr. Adams' valve—say, $1\frac{1}{2}$ in. diameter and $6\frac{1}{2}$ in. open, and see if your readers, by any process of reasoning, can form a vacuum in the way your contributor describes.

D. C. & SON.

BOOKS RECEIVED.

We have received the following works, but from want of space must defer further notice of them until next month :—

Chart for Finding the Latitude and Longitude without Instruments. By Lieut.-Colonel Yonge, R.A.

The Law of Storms Considered Practically. By W. H. Rosser.

Tables for Facilitating Sumner's Method at Sea. By Sir William Thomson, D.C.L., LL.D., F.R.S., &c.

Revue Maritime et Coloniale, for August.

Rivista Marittima. July and August.

Contributions to the Meteorology of Japan. By Staff-Commander Thos. H. Fizard, H.M.S. *Challenger*. Published by the authority of the Meteorological Committee.

SHIPBUILDING, 1876.

SAILING SHIPS.

Ports.	No. of Ships first six months.	No. of Ships correspond- ing period last year.	Gross Tonnage first six months.	Gross Tonnage corresponding last year.
Aberdeen ...	6	5	2,899	2,815
Barrow ...	2	5	1,176	4,635
Belfast ...	2	4	1,985	4,353
Bristol ...	2	—	246	—
Cowes ...	5	4	283	374
Dartmouth ...	15	18	1,624	1,568
Dundee ...	6	6	3,242	5,249
Faversham ...	14	1	825	39
Glasgow ...	25	29	24,895	31,267
Greenock ...	9	13	4,396	9,072
Grimsby ...	14	8	1,408	527
Hartlepool ...	1	1	879	665
Hull ...	13	9	1,063	645
Jersey ...	5	9	312	818
Liverpool ...	17	12	13,070	6,747
London ...	11	8	747	353
Middlesbro' ...	4	1	3,426	182
Newcastle... ..	2	3	1,738	788
Plymouth ...	20	7	1,811	1,314
Port Glasgow	9	9	7,737	9,006
Portsmouth ...	8	3	874	381
Rochester... ..	9	6	887	282
Southampton ...	9	7	1,575	521
Stockton ...	1	2	1,485	2,594
Sunderland ...	26	28	19,079	20,634
Whitehaven ...	4	2	2,482	2,255
Workington ...	1	1	771	1,069
Yarmouth ...	10	5	484	145
Other Ports ...	102	87	13,235	11,885
Totals ...	352	293	112,434	120,133

SHIPBUILDING, 1876.

STEAMSHIPS.

Ports.	No. of Ships first six months.	No. of Ships correspond- ing period last year.	Gross Tonnage first six months.	Gross Tonnage corresponding period last year.
Glasgow ...	44	52	31,803	50,760
Greenock ...	12	11	6,872	18,998
Port Glasgow	7	18	4,224	8,038
Sunderland	14	12	15,391	15,522
Newcastle	26	21	27,940	24,483
North Shields	8	5	638	3,118
South Shields	11	8	1,510	3,095
Liverpool ...	7	5	5,363	4,127
Dundee ...	3	6	2,873	3,276
Hartlepool	5	11	3,722	12,399
Aberdeen ...	4	2	1,186	1,357
London ...	14	9	1,787	4,083
Belfast ...	1	—	497	—
Stockton ...	2	4	1,034	4,832
Middlesbro'	3	8	2,384	8,657
Hull ...	3	1	1,702	3,110
Bo'ness ...	1	2	75	1,841
Whitehaven	—	1	—	232
Barrow ...	1	1	790	1,025
Whitby ...	2	4	2,555	4,602
Southampton	5	—	738	—
Other Ports	12	17	787	1,906
Totals	185	198	113,866	170,406

PERU.—THE PORTS OF PIMENTEL AND PACASMAYO.—The Peruvian Government has issued a decree declaring the ports of Pimentel and Pacasmayo to be open to the entrance of foreign vessels. This decree was to come into effect on the 1st August, and all business connected with the new ports will be conducted under the regulations of December 16, 1866, and subsequent decrees relative to foreign and coasting shipping.

MONTHLY ABSTRACT OF NAUTICAL NOTICES.

No.	PLACE.	SUBJECT.
187	ENGLAND—South Coast—Spithead	Buoys marking Torpedo Ground.
188	HINDOSTAN—West Coast—Katiawar—Beyt (Bate) Harbour	Establishment of a Light.
189	HINDOSTAN—West Coast—Katiawar—Pur Bunder	Alteration in Light.
190	NORWAY—South Coast—Langesund—Langø-tangen	Re-exhibition of Light.
191	NORTH SEA—Jade River—Minsener Sand	Establishment of a Light-Vessel near.
192	NORTH SEA—Schelde River—Walcheren—Westkapelle and Domburg	Establishment of Lights.
193	NEW ZEALAND—Middle Island—Cape Foulwind	Establishment of a Light.
194	FRANCE—North Coast—Etaples Bay—Canche River	Alteration in Light.
195	SCOTLAND—East Coast—Aberdeen	Incidental alteration in North Pier Light.
196	SICILY—North Coast—Termini	Light on Breakwater
197	ADRIATIC—Port Rabaz—St. Andrea Point	Alteration in colour of Light.
198	ITALY—West Coast—Vada	Pier and Harbour Lights.
199	SOUTH AMERICA—West Coast—Valdivia—Point Galea	Establishment of a Light.
200	NORWAY—Christiania Fiord—Wægholm	Alteration in Light.

NAUTICAL NOTICES.

187.—ENGLAND.—*South Coast.*—*Spithead.*—Four buoys, painted green and white in horizontal bands, and marked *Torpedo ground*, have again been placed in the vicinity of No-man's land bank, for the purpose of indicating the limits within which torpedo experiments are made. They will be removed when the operations are concluded. Mariners are cautioned not to pass within the space marked by these buoys.

188.—HINDOSTAN.—*West Coast.*—*Katiawar.*—*Beyt (Bate) Harbour.*—A light of the fourth order is now exhibited from a lighthouse at the north-east end of Sainia or Sayáni island, Gulf of Kutch. The light is a *fixed white* light, visible through an arc of 180 degrees, elevated 35 feet above high water, and should be seen 11 miles. The lighthouse, 18 feet high, is built of stone. Position, as given, lat. 22° 29' N., long. 69° 4' 30' E.

189.—HINDOSTAN.—*West Coast.*—*Katiawar.*—*Pur Bunder.*—The light exhibited at Pur Bunder has been replaced by one of the fourth order. The light is a *fixed white* light exhibited from a tower in the town wall, elevated 85 feet above high water, and should be seen 15 miles. Position, as given, lat. 21° 37' 10" N., long. 69° 35' E.

190.—NORWAY.—*South Coast.*—*Langesund.*—*Langötangen.*—With reference to Nautical Notice, No 68 (March, 1876), on an intended alteration in Langötangen light. The light is now re-exhibited. The light shows *white* between the bearing of N.N.E. and N.N.W. $\frac{1}{4}$ W., and *red* when bearing to the eastward of N.N.E. or to the westward of N.N.W. $\frac{1}{4}$ W. To the northward the light is obscured.

NOTE.—The first-mentioned bearing leads to the eastward of Sten-grunden about 6 or 7 cables, and the last-mentioned bearing leads westward of Finsboerne 3 or 4 cables, so that vessels keeping within the arc of white light are out of danger.

191.—NORTH SEA.—*Jade River.*—*Minsener Sand.*—A light-vessel has been placed in the Aussen Jade channel to the southward of the Minsener sand, from which a light is now exhibited. The light is a *fixed red* light exhibited from the mainmast, elevated 51 feet above the sea. The vessel, moored in 9 fathoms, has three masts, is painted red, with the words *Minsener sand*, in white letters, on the sides, and carries a red ball at the mainmast-head as a day mark. Position, as given, lat. $53^{\circ} 45' 24''$ N., long. $8^{\circ} 5' 6''$ E.

192.—NORTH SEA.—*Schelde River.*—*Walcheren.*—*Westkapelle and Domburg.*—A light of the third order is now exhibited from a tower on the sea dike of Westkapelle. The light is a *fixed white* light, visible seaward between the bearings of S. by W. and N.E. by N., elevated 59 feet above high water, and should be seen 13 miles. The lighthouse is built of iron, and is situated N. $\frac{3}{4}$ W., distant 1,530 yards from the Westkapelle lighthouse. Position, lat. $51^{\circ} 32' 30''$ N., long. $3^{\circ} 26' 15''$ E.

NOTE.—These two lights in line bearing S. $\frac{1}{4}$ E. lead between the Steen banks and through the East Gat.

Domburg.—Also, that a light of the fourth order is now exhibited on a high dune near Domburg. The light is a *red and white* light, showing red between the bearings of S.E. $\frac{1}{4}$ E. and E. by S. $\frac{1}{4}$ S., and white to the southward of E. by S. $\frac{1}{4}$ S. The keeper's dwelling is near the light. Position, lat. $51^{\circ} 33' 50''$ N., long. $3^{\circ} 29' 30''$ E.

NOTE.—Vessels coming from seaward through the East Gat should keep the two Westkapelle lights in one S. $\frac{3}{4}$ E., whilst passing through the red sector of Domburg light, but on Domburg light changing to white, the course must be altered and made parallel to the dike until the leading lights of Kaapduinen are in one.

198.—NEW ZEALAND.—*Middle Island.*—*Cape Foulwind.*—With reference to Nautical Notice, No. 63 (March, 1876), on the intended exhibition of a light on Cape Foulwind, west coast of the Middle island, the New Zealand Government has given further notice that, about the month of August, 1876, the light would be exhibited. The light is a *revolving white* light of the second order, attaining its greatest brilliancy

every half minute, elevated 190 feet above high water, and should be seen 19 miles. The lighthouse, 53 feet high, is built of wood, and painted white.

194.—FRANCE.—*North Coast.—Etaples Bay.—Canche River.*—It is intended to re-place one of the fixed lights at the entrance of this river by a scintillating light.

195.—SCOTLAND.—*East Coast.—Aberdeen.*—In consequence of the impracticability in stormy weather of lighting the three lamps at the extremity of the South breakwater, Aberdeen, the following incidental alteration will, at such times, be made in the North pier light, viz.: The light will be obscured through an arc of 67 degrees over the south side of the entrance to the harbour, the northern limit of obscuration passing 200 feet outside the extremity of the South breakwater.

196.—SICILY.—*North Coast.—Termini.*—A *fixed red* light is now exhibited from a lantern at the extremity of the breakwater in the course of construction at Termini. The light is 18 feet above the sea, and should be seen 4 miles.

197.—ADRIATIC.—*Port Rabaz.—St. Andrea Point.*—The colour of the light has been changed from white to *green*.

198.—ITALY.—*West Coast.—Vada.*—A light is now exhibited from a lantern on the pier and the harbour light exhibited on the fort has been changed from a fixed white light to a *fixed red* light, in order to distinguish it from the Vada rocks light.

199.—SOUTH AMERICA.—*West Coast.—Valdivia.—Point Galera.*—With reference to Nautical Notice, No. 51 (March, 1874), on the intended erection of a lighthouse and establishment of a light on Point Galera:—The light is now exhibited. It is a *fixed and flashing white* light of the second order, showing a flash every minute, elevated 180 feet above high water, and should be seen 20 miles. The tower, 62 feet high, is painted white, and attached to the keeper's dwelling. Position, lat. 40° 1' 30" S., long. 73° 44' 10" W.

200.—NORWAY.—*Christiania Fiord.—Wagholm.*—The light is now exhibited from a new lighthouse, and visible between the bearings of E.N.E., through east and south, to W. $\frac{1}{4}$ S.; the first-named bearing leads to the northward of Rambergskaar and the shallows, which lie about one and a half cables to the westward of the lighthouse; the bearing W. $\frac{1}{4}$ S., leads to the northward of Blego. The light is elevated 20 feet above the sea, and should be seen 6 miles. The lighthouse is painted yellow. In thick and foggy weather, a bell will be sounded *fifteen* times, and then, after a short interval, *twice*, then again fifteen times, and so on.

HYDROGRAPHIC NOTICES PUBLISHED BY THE ADMIRALTY.

No. 20.—Information relating to Borneo, Basilan, and Zebu islands, derived from an official report of Captain Knorr, commanding the ship *Hertha*, German Imperial Navy, 1875.

No. 21.—NEWFOUNDLAND.—Sailing Directions relating to Bonavista bay, by Staff-Commander J. H. Kerr, R.N., in charge of Admiralty Survey, 1871.

Sailing Directions for parts of the East and South coasts, by Navigating Lieutenant N. F. Maxwell, R.N., in charge of Admiralty Survey, 1872 and 1873.

CHARTS, &c., Published by the Hydrographic Office, Admiralty, to the end of August, 1876, and sold by the Agent, J. D. Potter, 81, Poultry, and 11, King Street, Tower Hill.

No.	Scale.		s.	d.
1063	m = 0·19	Australia, South Coast:—Western Approach to Bass Strait	2	6
761	d = 2·0	West India Islands and Carribean Sea, Sheet I.:—Florida Strait, Bahama Islands, &c.	2	6
2057	m = 0·8	Scotland, West Coast:—Ardnamurshan Point to Loch Bhreatal, Skye (preliminary chart)	2	6
2347	d = 2·2	Japan:—Nipon, Kinsin and Sikok, and part of Kerca	2	6

INSTRUCTIONS TO SUPERINTENDENTS.—AGREEMENTS, &c.—The attention of the Board of Trade has been called to a recent case in which the registered owner of a ship demised his vessel by a time charter party to another person who as charterer appointed the master and crew, paid their wages, and had for the time being the whole control of the ship. As the Court of Queen's Bench decided in the case in question that the charterer, and not the registered owner, was legally responsible for the payment of the seamen's wages, and was virtually owner of the ship until the charter terminated, Superintendents are informed that in such cases for the future the name and address of the charterer who appoints the master and crew should be stated in full on the form of agreement and on the allotment notes.—T. H. FARRER, Secretary; THOMAS GRAY, Assistant-Secretary.—*Board of Trade Circular, No. 64, July, 1876.*

OUR OFFICIAL LOG.

BOARD OF TRADE INQUIRIES.

Name of Vessel.	Port.	Nature of Casualty.	Judgment of Court.
A. 1	Scarborough	Foundered after being struck with ice	Second Officer's certificate suspended for 12 months.
<i>Aboyne</i> (ss.) ...	Aberdeen ...	Stranded...	Master's certificate returned.
<i>Atalanta</i>	Greenock ...	Explosion of coal gas and loss of five lives... ..	Master's certificate suspended for 2 years.
<i>Catherine and Ann Mary</i> ...	Sunderland...	Stranded...	Master's certificate suspended for six months.
<i>Consett</i> (ss.) ...	Ditto ...	Ditto ...	Master's certificate suspended for 3 months.
<i>Elgin</i>	Leith	Ditto ...	Master's certificate returned.
<i>Fairy Queen</i> (ss.)	Glasgow ...	Ditto ...	Master's certificate returned.
<i>Forth</i>	Balbriggan...	Ditto ...	First Mate's certificate suspended for 6 months.
<i>Newsy</i>	London ...	Ditto ...	Master's certificate suspended for three months.
<i>Zemindar</i>	Liverpool ...	Burnt ...	Master's certificate returned.

QUARANTINE NOTICES.

BOARD OF TRADE, July 19.—The Board of Trade have received through the Secretary of State for Foreign Affairs a copy of a despatch from Her Majesty's Consul at Mobile, stating that a general quarantine has been established both at Pensacola and at Mobile against all vessels and persons coming into either port from places where yellow fever exists or may be found to prevail.

BOARD OF TRADE, July 31.—The Board of Trade have received, through the Secretary of State for Foreign Affairs, a copy of a telegram from Her Majesty's Ambassador at Constantinople, stating that the plague had ceased at Baghdad, and, that in consequence of the improved state of health in Mesopotamia, quarantine in Turkish and Egyptian ports is reduced to five days, with the exception of arrivals from Bushire, which are still subject to fifteen days.

BOARD OF TRADE, Aug. 9.—The Board of Trade have received through the Council-office quarantine rules and regulations for Samoa;

and through the Secretary of State for Foreign Affairs, a copy of a despatch from Her Majesty's Acting Consul-General at Alexandria, stating that the Egyptian Sanitary Board have decided to admit to pratique arrivals from Arabian ports of Persian Gulf, and to place those from Persia in five days' quarantine. The Consul further adds, that restrictions will shortly be entirely removed.—Aug. 10: The Board of Trade have received through the Secretary of State for Foreign Affairs, a copy of a despatch from Her Majesty's Acting Consul at Buenos Ayres, enclosing regulations respecting pilotage in the Argentine Republic.—Aug. 11: The Board of Trade have received, through the Secretary of State for Foreign Affairs, a copy of a telegram from Her Majesty's Ambassador at Constantinople, stating that quarantine in all Turkish ports on arrivals from every part of the Persian Gulf, without exception, has been removed, but that it is still maintained in Egyptian ports on arrivals from Bushire.

BOARD OF TRADE, Aug. 15.—The Board of Trade have received, through the Secretary of State for Foreign Affairs, a copy of a telegram from Her Majesty's Acting Consul-General at Alexandria, stating that all arrivals from the Persian Gulf are admitted to free pratique.

CANCELLATION OF CERTIFICATE.—BOARD OF TRADE, Aug. 1.—Joseph Osmotherley, mate of the *Almon Rowell*, 69,869, having been convicted of theft of a coat, the property of the master of the said vessel, the Board of Trade, acting in exercise as the powers conferred upon them by the Merchant Shipping Act of 1854, have cancelled the certificate of competency of ordinary master mariner, No. 28,306, granted to the said Joseph Osmotherley.

SUSPENSION OF CERTIFICATE.—BOARD OF TRADE, Aug. 2.—An official inquiry has been held by the Local Marine Board, at North Shields, to investigate charges of drunkenness and misconduct preferred against John Thomas Carrick, chief engineer of the *Royal Standard* (s), Official No. 65,404. The charges having been proved, the Board suspended his certificate of competency as first engineer, No. 6,948, for three calendar months from July 17, 1876.

CANCELLATION OF CERTIFICATE.—BOARD OF TRADE, July 18.—George Thomas Fountain, a master mariner, but engaged in the capacity of boatswain on board the barque *Hindustan*, of London, having been convicted by the magistrates of Newport (Monmouth), and imprisoned for four weeks with hard labour, for deserting that vessel, the Board of

Trade, acting in the exercise of the powers conferred upon them by the Merchant Shipping Act, 1854, have, therefore, cancelled the certificate of competency as master, No. 96,614, granted to the said George Thomas Fountain.

CRIMPING PROSECUTION BY THE BOARD OF TRADE.—At the Thames Police Court, on the 8th August, a noted crimp named Crutchley was charged, at the instance of the Board of Trade, with having gone on board the barque *Lancashire Witch*, lying off Blackwall Pier, on the 2nd August, without the permission of the master of the vessel, contrary to the provisions of Section 237 of the Merchant Shipping Act, 1854. P.C. Landen (one of the officers employed by the Board of Trade on the river Thames, for the suppression of crimping), saw Crutchley go on board from the pier, and immediately rowed off to the vessel, when Crutchley came from the deck and sat upon the rail, denying having been on deck. The chief officer of the vessel stated that he found Crutchley talking to the crew, and that he ordered him out of the ship, as neither the Captain nor himself had given him leave to come on board. The Magistrates considered the case proved, and fined the defendant £10 and 2s. costs.

INSTRUCTIONS TO SUPERINTENDENTS OF MERCANTILE MARINE OFFICES.—**APPRENTICE'S INDENTURES.**—The only forms of indentures of Apprenticeship to the sea service now authorised by the Board of Trade are those issued by the Queen's printers. You will therefore refuse to endorse and record any indentures executed after the first day of October, 1876, that may be brought or transmitted to you for the purpose of being recorded unless the names of the Queen's printers (Messrs. Eyre and Spottiswoode) are printed at the foot.—EDWARD STANHOPE, Secretary; THOMAS GRAY, Assistant-Secretary.—*Board of Trade Circular, No. 65, July, 1876.*

GENERAL.

SEA PROTESTS.—In our article on "Sea Protests," page 590 (July), it is stated that, "In the case of the *Walamo*, where the jury found the ship was unseaworthy, the protest was drawn up by the solicitors to the owners, and it was stated in evidence by the mate that upon his objecting to sign it upon the ground that it was not correct, threats were made ~~was~~ of for the purpose of inducing him to do so." Our attention has been

called by Mr. Arthur E. Barrett, the mate of the *Walamo* to an inaccuracy in the above passage, which we hasten to correct. It was not the mate, but the *second* mate, who gave evidence that he was threatened.

DEATHS OF SEAMEN.—The usual annual return of the deaths of merchant seamen, as far as they are reported to the Board of Trade, gives an account of 5,398 deaths reported in the year 1875. As many as 3,268, or considerably more than half these deaths, occurred by drowning, but two-thirds of them by drowning when vessels were wrecked. An eighth of the whole number of the deaths happened from fever, yellow fever causing the majority of this class of deaths; 1 in 18 of all the deaths was from cholera, diarrhoea, dysentery, and diseases of that class; 1 in 24 was from consumption, bronchitis, or other diseases of the lungs; 1 in 37 was from diseases of the brain and nervous system; 1 in 39 from diseases of the heart and great blood vessels. As many as 41 of the deaths were suicides, and there were 5 deaths from murder or homicide.

UNSEAWORTHY SHIPS.—A return was issued on Thursday, showing that in the period from August, 1878, to February of the present year, 744 vessels were ordered to be detained on account of alleged defects in hull, equipment, or machinery. Of that number 25 were found seaworthy and released, 495 were unseaworthy, and repaired and released, 76 were unseaworthy and were still under detention, 9 were awaiting survey, 136 had been broken up or converted into hulks, &c., 2 were foreign, and the detention was withdrawn, and 1 was to be surveyed for re-registry. During the same period, 100 vessels were ordered to be detained, on account of allegations of overloading or improper loading. Of these, 2 were seaworthy, and released; 97 were lightened or reloaded, and released, and 1 was ordered to be detained but escaped the detention.

THE PORTS OF LIVERPOOL AND LONDON.—Of the 20 millions sterling received for Customs' duties in the United Kingdom in 1875 no less than £9,940,000 was collected in the port of London, £2,919,000 at Liverpool. As many as 11,311 vessels, of 4,910,588, tons arrived in the port of London from foreign ports in the year; and 5,481 vessels of 4,402,116 tons, arrived at Liverpool. The returns show a general advance in the quantities of foreign produce entering the port of London. The importation of tea into London in 1875 reaching the unprecedented quantity of (in round numbers) 197,000,000 lbs. The list of passengers whose baggage was examined within this port in 1875 shows 111,789 persons, and their packages so examined were 274,776; but the number

of packages examined by no means represents the total number passed. Except in doubtful or suspicious cases, it is not the practice to open every package, but to select a portion at the discretion of the officers.

SAVING LIFE AT SEA.—At a meeting of the Greenock Local Marine Board, Mr. Colin S. Caird presiding, Captain Shepherd, of the ship *Moir*, of Aberdeen, had conveyed to him the thanks of the Italian Government for his kindness to a crew of eleven persons belonging to an Italian vessel last January. The Italians had left their ship on the seas, it having become disabled, and were taken on board a French vessel, from which they were transferred to the *Moir* on the 12th January last, and brought by Captain Shepherd to Queenstown, for which he refused any recompense. For this the Italian Government, through the Board of Trade, wished to thank him for his kindness and consideration. The letter, which was of a very laudatory nature, was read to him, after which the chairman addressed a few fitting remarks, and complimented him on his kindly attention having been recognised in such a way. He was instructed to leave his certificate in the hands of the Board, in order to have a notice of the matter recorded upon it.

BOARD OF TRADE RETURNS.—From the Board of Trade Returns for the month of July, we gather that the total declared value of exports for the month was £16,084,887, against £20,249,618 in 1875, and £21,142,062 in 1874. In the imports the total declared value for the month was £31,876,808, against £34,461,554 in 1875, and £32,764,236 in 1874. With regard to the shipping trade, it appears that in the month of July last the tonnage of vessels employed in the trade to foreign countries was :—Entered inwards, 1,716,474 ; cleared outwards, 1,598,699 ; against 1,618,183 tons, and 1,624,277 tons respectively for the same month in 1875. In the trade to British possessions, 545,710 tons were entered inwards, and 391,181 cleared outwards, against 418,483 tons, and 390,087 tons in July, 1875. In the general coasting trade, 2,089,790 tons of British, and 9,561 tons of foreign shipping entered inwards during the month, against 2,066,874 tons British, and 9,688 tons foreign, in July, 1875. The clearances consisted of 1,790,517 tons British, and 7,790 tons foreign, against 1,781,894 tons British, and 6,488 tons foreign, in 1875. The intercourse between Great Britain and Ireland was represented by 801,298 tons British, and 2,688 tons foreign entered inwards, against 791,645 tons British, and 1,818 tons foreign last year ; and 722,243 tons British, and 1,758 tons foreign cleared outwards, against 716,028 tons British, and 410 tons foreign last year. The grand total in the coasting trade for the

month was 2,099,851 tons entered and 1,807,807 tons cleared, against 2,076,007 tons entered, and 1,788,882 tons cleared in July, 1875.

SCOTTER'S IMPROVED MOVABLE BERTHS.—It frequently happens that ships take a large number of passengers on an outward journey, but on the return have very few, and if it were practicable the owners would probably be glad to bring extra cargo to make up for the small number of passengers. The labour and expense of taking down the berths, and, perhaps, replacing them for the next outward journey, would, however, make a considerable diminution in the profits of the cargo. To obviate this difficulty, the inventor of the berths under notice claims that with his system all the berths in a ship could be removed or put up in a few hours. The advantage to ships carrying cargo and passengers is obvious. When these berths are provided for cabins, a cupboard is supplied with them, in which the berth can be packed if not in use; but if in use, the cupboard forms a convenient wardrobe. The berths can be also supplied as “swinging berths”—i.e., they can be affixed to the beam brackets, &c., and secured to the deck by an indiarubber strap attached to each leg; they thus adapt themselves to the roll and pitch of the ship so exactly that oscillation is reduced to a minimum. The berths are well adapted for gentlemen's yachts, and all kinds of boats built for the conveyance of passengers, and fitted for sleeping accommodation. Description:—The frames are made of 1-inch or $\frac{1}{2}$ -inch square iron, with cotter holes in each to receive the brackets for beds. The sides are made of light angle iron or wood, and canvas or other curtains can be added if necessary. Light hoop-iron webbing is used for the bottoms. The brackets are adapted for hanging the berths either lengthwise or across the ship, and are made of wrought or cast iron, with a split forelock to secure the frames to them. Advantages:—It will not be necessary to build any berths in a ship, which will be a great saving to both builder and owner. The “load-line” can be regulated, as all berths fore and aft can be used for cargo if necessary. Cabin berths can be stowed away when not in use, and so be saved from damage. In case of an epidemic, all the berths could be taken down and cleaned in a few hours. The agent for Scotter's berths is Mr. W. A. Taylor, engineer, 19, Brockley Buildings, South John Street, Liverpool.

THE SHIPMASTERS' SOCIETY.

IN our July number we referred briefly to the formation of an association favourable to the development of friendly intercourse and co-operation among the great body of British shipmasters, for their mutual benefit. An influential meeting of shipowners and shipmasters had then been held under the presidency of the Lord Mayor, at which the preliminary steps had been taken for the constitution of such a society.

We are now informed that the society is in a fair way of being established. A committee of shipmasters has been formed, a set of rules has been carefully drawn up, 100 members have already been enrolled, eligible premises are obtained, and, what is of considerable importance, handsome donations have been received from various large firms to assist in the establishment of the society.

It affords us great pleasure to be able to make the above announcements, for we entirely sympathise with shipmasters in their desire to join themselves together, not only for the advancement of their interests, but for the development and elevation of their profession.

We observe, it is at the outset, stated very emphatically that it is not intended by means of this society to array shipmasters against shipowners; indeed, in the rule which refers to the object of the society, it is expressly stated that "the society is established for the mutual protection and advancement of the general interests of its members (but without power to entertain any question in dispute between a shipmaster and his owners)."

Having regard to this fact, we think shipowners will do well to encourage the establishment of a society which is likely to assist in elevating the class of men to whom they entrust their ships, and by means of which shipowners may be enabled to have a more ready and friendly intercourse with shipmasters, and so each class be mutually benefited. The shipowners as a body are rich, but that can hardly be said of the body of shipmasters; and if the former are anxious to encourage friendly relations with the latter, they will do wisely to see if they cannot take advantage of the establishment of this society, and help it with what is most essential in all such undertakings—viz., money.

The Peninsular and Oriental Company have already contributed 100 guineas; Messrs. Rothschild, 50 guineas; Messrs. Wigram, 25 guineas; and many promises have been made that so soon as the society shows itself ready for launching with a reasonable probability of keeping afloat, practical support will be accorded from many quarters.

The promoters, moreover, hope to obtain the patronage and support of the various official bodies whose duties are directly connected with Mercantile Marine matters.

In bringing to the notice of shipmasters the advance made since July in the establishment of this society, we wish to say that, in our opinion, the value of an institution of this kind cannot be adequately stated at the outset. It is difficult to foretell in what manner it may ultimately develop itself; but of this we are sure, that a Shipmasters' Society founded on a firm basis and guided by men of wide experience and broad sympathies, has a career of practical usefulness open to it, and ultimate possibilities which at present cannot be definitely stated; and there is no doubt that by means of such an institution, master mariners may be enabled to benefit themselves in many respects. It is therefore to the interest of all shipmasters to take advantage of this opportunity, and to give what support they can to the establishment of this Society.

With the influential support already accorded to the undertaking by shipowners, and the promises held out by others, it only remains for the shipmasters to work together with a will to ensure success. But, as we observed in our July number, the shipmasters must depend upon themselves, and must act with judgment and energy; they must be sure that the management of the Society is in the hands of men of ability and experience in connection with maritime matters; and, above all, that the broad objects of the Society are always kept steadily in view, so that the organisation may never degenerate into an association serving only the personal interests of a few people.

We venture to offer these remarks, not because we have the slightest word to say against the management as already formed. We respect Captain Woolcott,* the chairman, as a man of the highest worth; and

* Since writing the above, we learn that Captain Woolcott, being about to go to sea in the P. & O. steamer *Pekin*, gives up the chairmanship to Captain Williams, and takes the position of vice-chairman.

those of the committee known to us, are all men of high character and standing in their profession; but having seen other societies, founded with the best intentions wrecked shortly after being launched, through misunderstandings, personal jealousies, and the influence of cliques, we feel a few warning words are not out of place at this period of the existence of the British Shipmasters' Society.

We may add that all enquiries in reference to the society will be readily answered by the chairman, or by the secretary. Letters addressed to either of these gentlemen should be sent to the temporary offices of the society at 10, Bell Yard, Gracechurch Street, London, E.C.

In the advertising columns of our present number, will be found a form which can be filled up by any shipmaster and forwarded to the secretary. The entrance fee has been fixed at Two Guineas, and the annual subscription at One Guinea, the latter being payable on the 1st July in each year.

We propose to keep our readers informed of the doings and progress of the society.

VESSELS TRADING TO THE DANUBE.—The Board of Trade have received, through the Secretary of State for Foreign Affairs, a copy of a despatch from Lieutenant-Colonel Siborne, the British Commissioner on the Danube, containing the following information:—"The European Commission of the Danube having on the 9th of May, 1876, officially adopted the Danubian system of tonnage measurement recommended by the International Commission of Constantinople of 1873, and put in practice for the passage of the Suez Canal, which decision is to take effect from Oct. 1, 1876, it is strongly recommended that English vessels trading to the Danube should be provided with 'Suez Canal Special Tonnage Certificates,' in order to avoid the delays to which they may be subjected by re-measurement at Sulina. This regulation does not, however, affect that of Nov. 10, 1875, which prescribes that in case measurement has not been claimed by the captain of the vessel, nor enjoined by the Navigation Cash Office, vessels not provided with the above-mentioned certificates shall pay an additional tax of 11 per cent."

THE
NAUTICAL MAGAZINE.

VOLUME XLV.—No. X.

OCTOBER, 1876.

OUR MARITIME DEFENCES CONSIDERED, COMBINED WITH
THE MANNING OF OUR MERCHANT SHIPS.

ARTICLE III.

THE object of the Royal Commission of 1859 was “to inquire into the best means of manning the Navy, and in what manner, and under what arrangements, seamen may be readily obtained for such purpose, either during peace or in case of sudden emergency of war;” and “as to the way in which the valuable services of the Mercantile Marine and the seafaring population of the United Kingdom may be rendered more readily and willingly available when required for the Naval Service.”

This Commission, of which Lord Hardwicke was chairman, examined a great many witnesses, nearly all of whom were eminently qualified to render advice, and, after duly considering the evidence, recommended amongst other matters the establishment for the first time of schools or training-ships for the education, at the expense of the State, of a limited number of boys who desired to follow seafaring pursuits.

Reviewing with care the different branches of the service, even to its most minute details, and the requirements of the Navy in peace and war, the Commissioners were of opinion, that while there was little or no difficulty in obtaining the requisite number of men for the ordinary wants

of Her Majesty's Naval Service, there were few or no reliable means for increasing that number ; and that this country should have a reserve of 60,000 men for an emergency, all of whom could be made available within a few months after the declaration of war. Consequently, the Commissioners recommended the creation of a new reserve force, to be drawn from the merchant service, which they styled Royal Naval Volunteers (since known as the Royal Naval Reserve), to consist of 20,000 men, " who will never be long absent from the ports from which they hail ;" and their number the Commissioners thought could be easily obtained from the coasting and short-voyage trades, embracing the trades to North America, the Baltic, and Mediterranean.

The inducements for men to join the proposed force were to be (1) a payment at short periods ; (2) a pension at the age of 50 to 55 ; (3) payment for time spent in practice ; (4) admission to the Coastguard ; and (5) participation in the benefits of Greenwich Hospital. That is to say, each man was to receive a retaining fee of £5 per annum, and the State was also to contribute a further sum of £1 per annum, which would secure to those men who continued in the service " a pension of not less than £12 at the age of 50, of £15 at from 52 to 53, and of £18 at 55." When at drill, which they were required to be for one month each year, they were to receive the same scale of pay, and other allowances as the seamen engaged in the Navy, besides the other advantages just named.

The Commissioners were of opinion " that no great reliance could be placed upon the Naval Coast Volunteers for manning the fleet in case of emergency," arising from the fact that they were " not seamen in the true acceptation of the term, but boatmen, fishermen, and along-shore men," and more especially as they could not, by the articles of their agreement, be called upon to serve at a greater distance than 100 leagues from our shores ; nevertheless, as they were " tolerable gunners, and would be useful for coast defence or for service in port," the Commissioners, strange to say, thought it would be advisable to increase this force to 10,000 men.

The Royal Naval Reserve has materially superseded the old Reserve, known as the Naval Coast Volunteers, which it was found included men in every trade and profession under the sun, except that for which they were retained, and many of whom were of no trade or profession whatever, having no regular place of abode except the county gaol or local prison, where they were found when their period for drill muster arrived.

The Commissioners further recommended that the Coastguard should be increased to 12,000 men ; that the reliefs of seamen in the home ports should not be less than 4,000 ; that 6,000 marines should be embodied on shore, ready for service afloat, and that it was advisable to have a further reserve of 5,000 short-service pensioners belonging to that valuable corps, as well

as 8,000 short-service seamen pensioners—men who had retired after ten years' service on a pension of 6d. per day, thus constituting a reserve force of 60,000 men at the estimated annual cost of £598,821*. Though the result, if not the object, of all commissions seems to be to increase expenditure, I should not have objected to even this large addition to our naval estimates; nor would it have been too much to pay, even if it did no more than afford relief from the panics which prevail, to a greater or less extent, at every rumour of war. But while agreeing with my colleagues in many of their recommendations, I felt that their scheme was based upon precarious foundations, and that it was not "really fitted to effect their object."† More reliable means, and "measures of a more rigorous and decided character" appeared to me to be necessary: (1) I thought that my colleagues did not sufficiently realise the fact, that steam had entirely changed the mode in which naval warfare would in future be conducted; (2) that as we were essentially a maritime people, and as our chief safeguard lay in our superiority at sea, I thought that a larger proportion of our military force should "consist of men competent to serve either afloat or on shore, who should, in fact, be a sort of naval militia, trained to the management of guns and to some of the more essential parts of a seaman's duty;" (3) that by garrisoning our seaports by men thus trained, we should have a very powerful and efficient reserve of gunners for our ships, whose places on shore could, on the emergency of war, be filled with either soldiers or militia, and their places in turn, in the inland towns, filled by the Volunteers. Thus while utilising to great advantage the services of that large and spirited force, we should not require to retain so many Seamen Reserves; and (4) that the reserve of seamen from the Merchant Service which

* This annual cost was made up as follows:—

Increased allowance of Provisions	£42,331
Pensions of warrant officers' widows... ..	19,150
Mess utensils, clothes, and bedding	14,200
Instruction and training-ships	15,918
Petty officers' badges	6,833
Pay and pensions for gunnery	6,239
	<hr/>
	£104,671
2,000 additional Coastguardmen	116,525
4,000 reliefs in home ports	132,000
5,000 short-service pensioners' Marines	45,625
20,000 Royal Naval Volunteers (15,000 from Merchant Service on home, and 5,000 on distant voyages), including the cost of school-ships ...	200,000
	<hr/>
Total	£598,821

† See "Letter from W. S. Lindsay to the Earl of Hardwicke, and Remarks Appended to the Report of the Commissioners," 1859.

Trade, acting in the exercise of the powers conferred upon them by the Merchant Shipping Act, 1854, have, therefore, cancelled the certificate of competency as master, No. 96,614, granted to the said George Thomas Fountain.

CRIMPING PROSECUTION BY THE BOARD OF TRADE.—At the Thames Police Court, on the 8th August, a noted crimp named Crutchley was charged, at the instance of the Board of Trade, with having gone on board the barque *Lancashire Witch*, lying off Blackwall Pier, on the 2nd August, without the permission of the master of the vessel, contrary to the provisions of Section 287 of the Merchant Shipping Act, 1854. P.C. Landen (one of the officers employed by the Board of Trade on the river Thames, for the suppression of crimping), saw Crutchley go on board from the pier, and immediately rowed off to the vessel, when Crutchley came from the deck and sat upon the rail, denying having been on deck. The chief officer of the vessel stated that he found Crutchley talking to the crew, and that he ordered him out of the ship, as neither the Captain nor himself had given him leave to come on board. The Magistrates considered the case proved, and fined the defendant \$10 and 2s. costs.

INSTRUCTIONS TO SUPERINTENDENTS OF MERCANTILE MARINE OFFICERS.—**APPRENTICE'S INDENTURES.**—The only forms of indentures of Apprenticeship to the sea service now authorised by the Board of Trade are those issued by the Queen's printers. You will therefore refuse to endorse and record any indentures executed after the first day of October, 1876, that may be brought or transmitted to you for the purpose of being recorded unless the names of the Queen's printers (Messrs. Eyre and Spottiswoode) are printed at the foot.—**EDWARD STANHOPE, Secretary;** **THOMAS GRAY, Assistant-Secretary.**—*Board of Trade Circular, No. 65, July, 1876.*

GENERAL.

SEA PROTESTS.—In our article on "Sea Protest," page 590 (July) it is stated that, "In the case of the *Walamo*, where the jury found the ship was unseaworthy, the protest was drawn up by the solicitors to the owners, and it was stated in evidence by the mate that upon his objecting to sign it upon the ground that it was not correct, threats were made use of for the purpose of inducing him to do so." Our attention has been

called by Mr. Arthur E. Barrett, the mate of the *Walamo* to an inaccuracy in the above passage, which we hasten to correct. It was not the mate, but the *second* mate, who gave evidence that he was threatened.

DEATHS OF SEAMEN.—The usual annual return of the deaths of merchant seamen, as far as they are reported to the Board of Trade, gives an account of 5,998 deaths reported in the year 1875. As many as 8,268, or considerably more than half these deaths, occurred by drowning, but two-thirds of them by drowning when vessels were wrecked. An eighth of the whole number of the deaths happened from fever, yellow fever causing the majority of this class of deaths; 1 in 18 of all the deaths was from cholera, diarrhoea, dysentery, and diseases of that class; 1 in 24 was from consumption, bronchitis, or other diseases of the lungs; 1 in 87 was from diseases of the brain and nervous system; 1 in 89 from diseases of the heart and great blood vessels. As many as 41 of the deaths were suicides, and there were 5 deaths from murder or homicide.

UNSEAWORTHY SHIPS.—A return was issued on Thursday, showing that in the period from August, 1873, to February of the present year, 744 vessels were ordered to be detained on account of alleged defects in hull, equipment, or machinery. Of that number 25 were found seaworthy and released, 495 were unseaworthy, and repaired and released, 76 were unseaworthy and were still under detention, 9 were awaiting survey, 186 had been broken up or converted into hulks, &c., 2 were foreign, and the detention was withdrawn, and 1 was to be surveyed for re-registry. During the same period, 100 vessels were ordered to be detained, on account of allegations of overloading or improper loading. Of these, 2 were seaworthy, and released; 97 were lightened or reloaded, and released, and 1 was ordered to be detained but escaped the detention.

THE PORTS OF LIVERPOOL AND LONDON.—Of the 20 millions sterling received for Customs' duties in the United Kingdom in 1875 no less than £9,940,000 was collected in the port of London, £2,919,000 at Liverpool. As many as 11,811 vessels, of 4,910,588, tons arrived in the port of London from foreign ports in the year; and 5,481 vessels of 4,402,116 tons, arrived at Liverpool. The returns show a general advance in the quantities of foreign produce entering the port of London. The importation of tea into London in 1875 reaching the unprecedented quantity of (in round numbers) 197,000,000 lbs. The list of passengers whose baggage was examined within this port in 1875 shows 111,789 persons, and their packages so examined were 274,776; but the number

they proposed would not be easily obtainable unless we invited their officers to enrol in the Reserve, and would be of little service unless we had a sufficient number of competent men to command them.

The last is the only one of my suggestions which has been carried into effect. Although this portion of the scheme has proved unsatisfactory from the fact that these officers seldom attend drill, and have not made themselves efficient in their duties, I felt that, however great the inducement, the entries from the Merchant Service for the first five years were so slow as to be altogether insignificant; and it was only after Government decided on admitting officers from the Merchant Service, conferring upon them an honorary distinguishing mark, that the Royal Naval Reserve became a force of importance. But even still, as I shall now endeavour to show, it is in some respects more imposing than real, and is entailing annually on the country a larger cost than its efficiency in the hour of need—for *which alone it was created*—would justify.

But had the recommendations of the Commissioners been fully carried out, and had we been enabled to secure reserves on whom we could rely, our force of men, while it would have been greater than we should have required for the number of suitable ships we could commission on the first outbreak of war, would still have been small in proportion to the number of men retained by either France or Germany for the purpose of manning on an emergency their ships of war. In the Crimean campaign, France, though insignificant as a naval power, had 63,000 officers and men in active service; and in the recent German war she had close upon 68,000 (29,000 of whom were employed in the defence of Paris), besides 28,500 *Marines*, or colonial soldiers, exclusive of 13,000 left in the colonies—in all, an amphibious force of one sort and another of no less than 109,500 men.

Germany has resolved to be a maritime power of no mean consideration, and although she may not be able to effect her object in this respect any more than France has done, we must remember that many of her people, like our own, but unlike the French, are devotedly fond of maritime pursuits, and by utilising this partiality for the sea, she might if her Government cared to incur the expense, be made almost as powerful at sea as she is now on land.

Our present First Lord of the Admiralty (Mr. Ward Hunt) and our President of the Board of Trade (Sir Charles Adderley) seem to entertain this opinion, as they recently visited that country to inquire into the mode of training its seamen, and the means whereby its reserves were to be secured; and although its system might not be applicable to this country in all its details, as it involves the adoption of principles we have hitherto ignored, it may be useful to state what the Germans are doing

as recently related by a writer in the *Standard*, who has evidently made himself thoroughly familiar with this subject. "Kiel," he remarks, "has been chosen for the training establishment for seamen for the German Navy, and there lads are entered, after passing a severe medical examination, between the ages of 15 and 17 years. The term of training is three years, at the expiration of which time the apprentices are enrolled as seamen in the War Marine if found qualified, and in return for the tuition they have received they are expected to engage for nine years' service. As a rule, those who have completed their three years at Kiel give promise on examination of making good seamen, while those who are backward are allowed to remain for another year, and should they fail at the expiration of that time, they are compelled to take three years' military service. During their stay at Kiel, the apprentices are not treated as if under naval discipline, but more as scholars. Their pay is about 12s. a month, out of which they have to provide their clothing, and it is calculated that the pocket money which remains to them is about 7d. a week. The sea-going training arrangements for the present year have been somewhat altered, owing to some of the vessels being recently dispatched to the Mediterranean, but the programme was to send the young seamen of 1876 for cruises in two brigs, the *Undine* and *Musquito*, while those of 1875 were to go in the corvette *Nymphe*. The corvettes *Arcona* and *Preussischer Adler* were to cruise with apprentices in the Baltic and North Sea respectively, while the frigate *Niobe* was to embark cadets of 1876, and the iron-clads *Kaiser*, *Deutschland*, *Freiderich Karl*, and *Kron Prinz* were to be formed into a squadron for evolutionary exercises. It will thus be seen that, having regard to the present strength of the German Navy, a very large proportion was detailed for training purposes. On passing into the Navy as a seaman, pay at the rate of £1 per month is granted, and after three years' service an additional payment of £2 is made for each consecutive twelve months served until the maximum monthly pay of about £1 8s. is reached. Before advancing a seaman to the lowest petty officer's grade, quartermaster, he must have served afloat for four years and hold a certificate of superior knowledge of every branch of a seaman's duty on board a man-of-war. To become a second class petty officer, a man must have served six years at sea, during one of which he must have held the rating of quartermaster, and have been captain of a gun. He then is given the grade of 'bootsmanns-maat,' or second master of manœuvres of the second class. And if he obtain a special certificate at the gunnery school, he may be rated 'feuerwerks-maat,' a kind of gunner's mate. Non-commissioned officers of Marines are also enabled to reach this grade if embarked for two years, and can pass the examination required. There are also higher grades which can be reached after longer service, but pay in every case

is much lower than that of similar grades in the British Navy. It will be seen that the system of advancement of seamen and petty officers is provided for according to strict regulations, and it would be impossible, however deserving a man might be, to give him such rapid promotion to the higher petty officer's grades as is frequently the case in our own Navy, where the captain of a ship has the power of selecting men to fill those posts for which he may think them best fitted. There is much to be said in favour of so complete a set of rules and regulations on this subject, for while greater freedom in the exercise of selection may prove of value in cases of special merit, yet it may be the means of leaving many men without a fair share of the rewards of the service, and render them discontented and anxious to obtain their discharge."

Although our last vote for the different Reserves (*exclusive* of the cost of training 2,500 boys exclusively for the Royal Navy, amounting to about £130,000, see Parliamentary Paper, "Naval Training Ships," 2nd August, 1875), created under the Act which carried into effect the recommendations of the Royal Commission of 1859 was £210,230, we are still—though much in advance of what we have hitherto been—2,000 men short of the number ordered to be enrolled in the Royal Naval Reserve,* of whom fully one-half are said to be in Great Britain, and presumed to be immediately available; but this may be questioned. (See details in foot-note.)

Though 47,356 men have been enrolled since the Act came into operation, 14,140, with all the advantages offered, have not applied to be re-enrolled, and only 780 men have, during that time, entered for service in the Navy. So far as regards the Coast Volunteers, now consisting chiefly

* On the 30th June last the actual strength of the Naval Reserve amounted to—

In the First Class	12,616
In the Second Class	5,461

18,077

Against an estimated amount of	20,000
------------------------------------------	--------

The number available at short notice, i.e., those estimated to be in the coasting trade and at home, are	First Class.	Second Class.
Within 3 months	6,495	4,360
" 6 "	5,182	938
" 12 "	359	60
" 12 "	220	43
Men left abroad on account of sickness, desertion, &c.	360	55
	<hr/> 12,616	<hr/> 5,461

of fishermen and other boatmen, we could not at present muster more than 1,000; nor could we depend on a greater number of Royal Naval Artillery Volunteers! but, I must add, that we have 6,000 Marines in barracks—a most valuable drilled force, on whom we could depend—and 4,000 Coastguardmen who, with their 200 officers, are really first-class seamen, not inferior, even in this respect, to the great majority of those who are enrolled in the Royal Naval Reserve.

By the courtesy of the Registrar-General of Shipping and Seamen, I am enabled to give in detail the number of seamen who have been entered since the Act came into operation, and how they have been disposed of, bringing the return down to the 30th of June last:—

			First Class.	Second Class.	Totals.
Number of seamen who have since the Act came into operation applied to be in-rolled	-	-	40,654	6,696	47,350
Deduct:—					
Rejections for physical or professional incapacity	First 5,172	Second. 663			
Claims accepted, but certificates RV 2 not applied for	568	—			
Claims outstanding and under consideration	62	43			
			5,802	706	6,508
Number of men enrolled	-	-	34,852	5,990	40,842
Deduct men who have—	First.	Second.			
Been discharged	3,549	165			
Died	3,853	88			
Joined the Royal Navy	694	36			
Not applied to be re-enrolled	14,140	1			
Been promoted from 2nd to 1st class .	—	239			
			22,236	529	22,765
Actual strength of the force	-	-	12,616	5,461	18,077

AGES.	First Class.	Second Class.	Totals.
From 20 to 25 years	2,405	3,798	6,203
" 26 to 30 "	4,001	1,316	5,317
" 31 to 35 "	3,079	347	3,426
" 36 to 40 "	1,951	—	1,951
Above 40 years . .	1,180	—	1,180
	12,616	5,461	18,077
Average age . . .	Yrs. Ms. 31 2	Yrs. Ms. 24 10	Yrs. Ms. 29 3

In the first class there are men with—	
Masters' certificates of competency	82
Mates' " "	653
Masters' certificates of service .	—
Mates' " "	6
P. O. ratings in the Merchant Service	4,449
TOTAL NUMBER DRILLED.	
First class	12,083
Second class	5,187
TOTAL	17,270

WHEREABOUTS.

				First Class.	Second Class.	Total
Estimated to be in the coasting trade and at home - - -				6,495	4,360	10,551
On leave—	First Class.	Second Class.	Totals.	Who are expected home—		
				Within 1st month		
				4,645	832	5,477
				340	57	397
				197	49	246
				159	27	186
				200	33	233
				220	48	268
			6,807			
Men left abroad on account of sickness, desertion, &c. - - -				360	55	415
TOTAL - - - - -				12,616	5,461	18,077

We are, no doubt, in a much better position now, so far as regards reserves, than we were at any other period of our history; but we are still short of the number the Commission of 1859 recommended by 2,000 Royal Naval Reserve men, 8,000 Coastguardsmen, and 11,000 short-service seamen, and Naval Coast Volunteers. Presuming that we have at present in our home ports the 4,000 "relief seamen," and the 5,000 short-service pensioners from the Marines fit for active service, we still require 21,000 men to make good the number the Commissioners, after mature consideration, were of opinion we ought to have.

But after carefully examining, as I have done, our resources of men during those periods when our fleets were triumphant on every sea, it would be worse than idle to argue, as some writers do, knowing the pluck and energy of our people and their superiority at sea over those of all other nations, that we are now in an unsafe position, or that it is *absolutely* necessary to make good the 60,000 reserves recommended by the Commissioners in 1859. Indeed, so far 'as regards our naval peace establishment, we never had a finer nor a better set of drilled men than we have at present, while the training-ships under the Admiralty, maintained solely at Government expense, supply, without the aid of the Merchant Service, all the vacancies in our peace force; *but they do no more*. Whether the scheme now in operation is the most economical and most politic mode of supplying existing wants is a question into which I shall hereafter enquire; in the meantime, I wish to impress upon my readers the fact that, as compared with former periods of our history, we are *thus far* in a more satisfactory position than ever we were.

In confirmation of this opinion I must ask my readers to refer to my last article. A careful study of the facts therein brought under notice will show that the number of men supposed to be secured by the pressgang was a delusion, and that the coasting trade having been an

all-important "nursery" for the seamen who manned our ships of war was a pleasing but popular error, and as great a delusion as the advantages that were supposed to be derived from the pressgang, whose members, I must add, appear to have been the greatest set of legalised, loading ruffians this country ever produced. That our Merchant Service, and especially the coasting trade, should have been, and I sincerely trust shall yet be, the principal nursery for such seamen as may be required by the Royal Navy, there cannot be a doubt; but it never has been so to *anything like* the extent generally supposed.

No doubt we obtained from coasting vessels, and especially colliers, some very brave and most valuable men during our great wars, many of whom distinguished themselves by their indomitable valour. These, with the seamen who had been trained in the Royal Navy, constituted the leading men in the old wars serving as boatswains, coxwains, captains of guns, or tops, and so forth; and with our commissioned and warrant officers, and above all, being under the command of Admirals whose names are now renowned in history, were chiefly instrumental in the extraordinary success which attended our naval engagements; but the bulk of the crews consisted of landsmen, of men who had never been trained to the sea, or of those who had experience only in boats. A very large number, however, consisted of the sweepings of our gaols and other worthless characters, and though they could and did fight when brought up to the mark by the trained seamen in charge of the guns, they must, considering the great trouble Lord Nelson had with them, and the vast number of desertions, have been, as a body, depraved scoundrels. It should further be borne in mind that this state of things continued until a very recent period; indeed, it embraced, as I have shown, the Crimean war.

For these reasons, then, I say we are clearly in a better position now than we ever were.

But considering our vastly increased wealth, our immense fleets of unprotected merchantmen, our extensive colonies and possessions, and above all, the greatly increased rapidity of action, combined with the entirely different mode in which future wars will be conducted, not a few of my readers may consider that we are still in an unsatisfactory position so far as regards our requirements in the event of war, or when compared with the armaments of other nations.

Various causes have tended to prevent the enrolment of reserves to the number recommended, and some of these must be deep-rooted prejudices against the Royal Navy, or the inducements offered by the Commissioners would surely have produced the full complement of men. Not the least of these were the ill-usage to which they were subjected on board of ships of war, and the villainous conduct of the pressgangs, which having been handed down from generation to generation, have

not yet been altogether eradicated from the minds of our seafaring population.

But while these are passing away, and our Navy is in a very satisfactory position to what it was, I must impress upon my readers the fact that we have not a sufficient number of skilled or trained men in our *Merchant Service* to fall back upon to increase our existing reserves, which we should assuredly require to do in the event of a great or prolonged war.

Our fleets of merchantmen, it is true, are far greater than ever they were—as great almost as the fleets of all other nations combined—and in these somewhere about 410,000 persons are now to be found following so-called seafaring pursuits; but they are *not* seamen.* Nor are they all—far from it—British subjects. No doubt we have always had a large number of foreign seamen in our Merchant Service, some of them very good men; but the best of these men now remain with their own ships, or in their own country, and a large proportion of those we now obtain are the worst description of foreigners.

The sad mutinies on board of the *Lennie* and the *Caswell* reveal, with terrible conspicuousness, the state of too many of the crews of our merchantmen, and the kind of men we are too frequently obliged to engage. To their improvement we must look before we can hope to obtain any increase in our reserves for the Royal Navy. The crews of the *Lennie* and *Caswell* were no doubt, and it is sincerely to be hoped they were, great exceptions to the general rule; but British sailors, while they have decreased in number in proportion to our ships, and deteriorated in seamanship, have not improved either morally or socially to the

* In the British Mercantile Marine there were, in October, 1874, from a careful computation made by the late Registrar-General of Seamen, about 407,000 persons manning ships coming to or from the United Kingdom. This does not include seamen manning British ships in the colonies and abroad that do not come to our shores. These 407,000 men he classified as follows:—

1. Certificated masters and mates	...	...	...	...	38,200
2. Certificated engineers	...	...	...	...	7,600
3. Uncertificated masters and petty officers	...	...	...	...	10,000
4. Fishermen	...	...	...	...	150,000
5. Other sailor men	...	...	...	...	151,200
6. Firemen, stokers, &c.	...	...	...	...	14,000
7. Stewards, &c.	...	...	...	...	5,000
8. Apprentices...	...	...	...	...	11,000
9. Other boys in merchant ships serving afloat	...	...	...	...	7,000
10. Boys in fishing boats	...	...	...	...	13,000

The annual "waste" of these numbers was, as far as he could ascertain, 16,000 men; that is to say, not that 16,000 seamen die every year, but that, including deaths, invalidings, desertions, and retirements from the sea service, about 16,000 men go out of the British Mercantile Marine every year.

same extent as other classes of the community, or to what might have been anticipated, considering the progress of knowledge and the means which have been placed at their disposal. Nor have they, I fear, improved in their habits of economy and sobriety, arising in a great measure from the fact that while legislation, on the one hand, has of late years made extraordinary efforts to provide for their comfort and safety at sea and their well-being and protection on shore, it has, on the other, by maintaining, contrary to the usage in all other branches of trade, the pernicious system of advance notes, encouraged extravagance as well as immorality and vice, and above all promoted the one great proverbial failing of British seamen, drunkenness, and that, too, at the very time (on leaving port) when sobriety is most essential for the safety of the property under their charge and the preservation of life. Considering their increased pay, and greatly superior provisions and accommodation, it was only natural to expect that there would have been corresponding improvements in themselves. But besides maintaining, to the injury of all parties the pernicious system of advance notes, we have neglected their education and their training, and to these causes may be attributed most of the difficulties which now exist, both as regards their inefficiency in the Merchant Service and the scarcity of supplies to constitute what the Commission considered ample war reserves for the Royal Navy.

Within the last few years labour has been so scarce that this has, no doubt, combined with the demand for shipping which existed a year or two ago, increased the scarcity of seamen, who found more remunerative employment on shore, either as riggers and stevedores, or as labourers in mines at home and abroad. Those causes are, however, only temporary. The true cause of the scarcity, when it exists, may be attributed chiefly to the fact that we are not training in an efficient manner a sufficient number of boys for service at sea; even in the present very depressed state of shipping, there is not anything like a full supply of *really good seamen* who know their duty, and are ready to perform it.

The natural avidity of our youths for seafaring pursuits is as great now as it ever was; but we have abolished all means of encouraging, or even of securing the necessary training. We now engage boys for the voyage instead of, as formerly, for a term of years, and though neither the employer nor employed may think so, *the custom we now pursue is alike detrimental to the interests of both*, while it has swept away what ought to be, in a country like this, the chief reliable means of national defence. Now these, by some means or other, must be restored, if we hope to maintain our high maritime position. How that is to be done is a question very difficult of solution, but it is one of no ordinary importance to us—far more so than to any other nation.

To this question the recent Royal Commission on Unseaworthy Ships,

directed its attention as a part of the subject into which its members had to inquire—viz., the supply of well-trained lads for the Merchant Service, and the development and maintenance of the Naval Reserve. They tacitly admitted that the system of compulsory apprenticeship, abolished in 1849, and which some shipowners desired to restore, but were opposed by others interested in steamships, had been the means of securing for the Merchant Service a supply of trained seamen, and they add that “the increased employment of steamers has diminished the opportunities for training sailors,” and that “although steam vessels engaged in the coasting trade, and in short voyages, attract many of the best men, they train up few for the service.”

They remark that different schemes have been suggested to supply this acknowledged evil: firstly, compulsory apprenticeship; secondly, training ships; thirdly, a combination of both schemes. “This last plan,” they state, “may be understood from the following outline,” which I give at length:—

“It is proposed that every vessel above 100 tons register, whether propelled by sail or steam, should be required to carry apprentices in proportion to her tonnage (the number to be fixed hereafter), or to pay a small contribution annually (such as 6d. per ton register); this sum to be applied towards the maintenance of training-ships in all the principal ports of the United Kingdom. The apprentices should, it is said, be indentured at or about the age of fourteen to the master of the training-ship for five years, and after serving in this ship for one or two years, the indenture should be transferred to any shipowner who would be willing to take the apprentice, and with whom the apprentice might be willing to serve until the completion of his term. In order that these training-ships might fit the boys for service at sea, a small vessel should, it is suggested, be attached to each ship, so that, with other instruction, the habit of a sea life might be acquired. These school-ships should be inspected, and receive grants from the State according to their efficiency.

“In the Report of the Commission on Manning the Navy, in the year 1859, training-ships were proposed to be maintained at the public expense.

“The cost of every boy so trained was estimated at £25 a year. This sum would be increased by the additional cost of sailing tenders, and without this preparation for a sea-life shipowners would not so readily take the boys.

“The system of apprenticeship undoubtedly affords the best means of training boys for a service in which fitness can only be acquired during early life, and if shipowners were willing to contribute as suggested above, it would, in our opinion, be a wise policy for the Government to aid these industrial schools of the Mercantile Marine.

“Some of the most respectable shipowners take apprentices, and from among these apprentices they frequently choose officers, so that this system must have worked well. It is said, however, to be a drawback to the system that there is a practical difficulty in getting quit of a disorderly and worthless apprentice. As it is desirable to encourage the system of apprenticeship, this inconvenience should be remedied.

“As this scheme for schools and apprentices must depend upon the support which it may receive from the shipowners, we have not entered further into the details of the plan. The number of lives entrusted to British ships, and the annual value of property afloat, impress us with the importance of securing, so far as possible, not only that the ships shall be seaworthy, but that seamen shall also be well trained and disciplined for the Merchant Service.

“The system of training boys for the Royal Navy has been successful, and if a somewhat similar plan could be adopted for the Mercantile Marine the sailors and shipowners would be benefited, while many sources of danger to the Merchant Service would be diminished or removed.”

I have now brought under the notice of my readers, in as brief a form as is consistent with perspicuity, all the plans which have been adopted, or submitted for consideration, by Commissioners and other official persons appointed to inquire into the question of manning during the last two centuries. From these a good deal of useful information may be obtained, such indeed as may enable persons interested in this important national question (and who is not?) to render their aid in supplying what is still required.

Hereafter I shall examine the recent proposals of the Commissioners on Unseaworthy Ships, which have not yet been adopted; nor, so far as I am aware, have they been fully considered by Government. In dealing with the great social question of what is to be done with our “street arabs,” or with other destitute boys, who, if not dealt with and educated, must become a pest to society, I shall endeavour to show (though I am aware that many of my readers entertain an entirely contrary opinion) that, without disturbing to any material extent the existing institutions, public or private, or increasing our present expenditure, those boys might be made valuable auxiliaries to our Merchant Service, and the number of trained seamen retained in this country thus increased to an extent that would provide at all times, and under any circumstances, ample reserves for the Royal Navy when their services were there required.

W. S. LINDSAY.

(To be continued.)

H.M.S. "THUNDERER."

BOILER EXPLODED 14TH JULY, 1876.—FORTY-FIVE MEN KILLED AND THIRTY WOUNDED.

IN this lamentable case the coroner's jury have concluded their labours by finding a verdict of accidental death. The *Thunderer* was a new ship, with new boilers, about to commence a trial trip. The boiler that burst was, according to Mr. Bramwell's evidence, and according to all known rules inefficiently stayed, both the safety-valves on it were set fast, both the stop-valves on it were shut, the pressure-gauge on it was disarranged and out of order, and the result of all this was that seventy-five men were placed *hors de combat*, of whom forty-five were killed, or died afterwards from the effects of injuries received: and that every one connected with the manufacture and working of the boilers has been exonerated from blame. The verdict, according to the report in the *Times*, is as follows:—"Accidental death, caused by the explosion of the starboard boiler of the after stoke-hole of H.M.S. *Thunderer*, on July 14th, 1876, the explosion resulting from excessive pressure upon the boiler consequent upon the generation of steam in it, the stop-valves being shut when the safety-valves were inoperative. The accident, therefore, is due to the sticking of the safety-valves from the contraction of their metal seats, but the stop-valves being closed we consider as contributing to the accident."

Everybody connected with the formal inquest, it cannot be called an investigation, has throughout appeared to be desirous of freeing the makers of the boilers and the users from all blame in regard to the forty-five deaths. But while recording the verdict in our pages, we desire to express our opinion that the whole case has strongly borne out our oft-repeated assertion that boiler explosions are the result of blunders and mismanagement. The jury in this case have thought otherwise, and by their verdict have shown that when a flat surface in a boiler, intended to be worked at 30 lbs., is stayed far below the rule recognised and promulgated so far back as 1854; when the two safety-valves on such a boiler are so tightly made that they must inevitably, and, therefore, did stick fast; when the two stop-valves on the boiler are shut fast; when at starting the hand of the pressure-gauge is allowed to be, and remain on the wrong side of the pin; and when under these circumstances a large body of men is sent to meet inevitable death or mutilation by firing up the boiler, and forty-five persons are actually killed, the result is all an accident, no one is to blame, and the makers of the boilers are expressly complimented. Had the boiler been on board a merchant ship it would, according to the evidence of an expert of the highest character, have

been allowed a pressure of 9 lbs., and, moreover, it would have been fitted with safety-valves that would have lifted; but on board one of Her Majesty's vessels it was loaded to 80 lbs., and fitted with safety-valves that did not lift. If the other boilers on board the *Thunderer* are similar in every way in construction, workmanship, and design, to the one which exploded on the 14th July, 1876, and if they are worked at 80 lbs. pressure, and if the *Thunderer* is put into a three years' commission, without any strengthening being added to the other boilers; then, according to our calculations, whether they have good safety-valves or not, they will inevitably all give out during the commission, and another jury may have the advantage of learning from experts how much better it is that boilers about to explode should not be strong, as the result of the explosion of a strong boiler is so much more serious than the explosion of a weak one. If the other boilers are strengthened before the *Thunderer* is put into commission, that fact will be a significant comment on the verdict and compliments of the jury.

The verdict of "accidental death," in such a case as this, is in itself noteworthy; but the comments and recommendations of the jury are more noteworthy still.

The jury recommend—"First, in future, that if any derangement of the pressure-gauge of any boiler occurs, care should be taken to ascertain if communication is free between it and the other boilers;" but they do not say whether it was through accident or neglect that this precaution, if it were necessary, was not taken in the present case; second, they recommend that certain alterations should be made in the construction of pressure-gauges; third, that a signal, "similar to a railway disc, should be thrust out in the stoke-hole" . . . by the "action of the stop-valve screw;" "fourth, that another and smaller safety-valve be fitted to each boiler, and visible in the stoke-hole." The jury quite fail to see that the appliances now available were in the case of the *Thunderer* so far neglected as to cause the accident, and that it is the height of absurdity to recommend other and new complications when those already provided are sufficient, but too numerous to receive proper attention. They also fail to see that if a small safety-valve be loaded beyond the pressure of the main valves, it could never lift, and would inevitably set fast unless regularly lifted by hand. "Fifth, that the Admiralty should cause further scientific experiments to be made into the construction and strength of flat-stayed surfaces for the benefit of the public generally." They do not notice that the deficiency of stays in the flat surface of the *Thunderer's* boiler was made a merit of, rather than otherwise, as causing the explosion to be less disastrous; nor do they, having regard to the fact that they themselves have ignored the results of all past experiments, see that when fresh experiments are made, and

obtain even half the reputation of the recommendations of 1854, a jury may in future be told by an expert that he has no faith in the "further scientific experiments," and the jury may prefer to be guided by the opinion of the expert. Sixth, that the boilers were of "excellent material and workmanship;" and they say this, although the expert called for the users of the boilers, is reported in the *Times* to have stated, "That the area of plates stayed in the uptake (the stays that held the part that gave way) was from about two-and-a-quarter to two-and-a-half times as great as the area of stayed surfaces on the side of the smoke-boxes: and also that the sides of the smoke-boxes were kept cool by water being in contact with the uptake in that part, while except for about 10 inches, at the lower position, the uptake plates had no water to keep them cool." It is possible that the jury thought the alleged great comparative deficiency of stays in the uptake, where the plates were subject to the impact of flame, to be a merit, and that it would have been wrong to have put a similar strengthening stay there in the absence of "further scientific experiments."

A practice inaugurated, we believe, by Sir William Fairbairn, and well known in 1854, has obtained amongst many boiler-makers, of requiring flat surfaces to be stayed up to eight times the working pressure of the boilers. This is called the factor of safety of 8. In order that our readers may be in possession of evidence as to this factor of safety, and of its existence for about a quarter of a century, and in order that our foreign readers, especially, may not really suppose with the jury that just as the extensive use of flat-sided boilers is disappearing, it is necessary to make scientific experiments to inform English boiler-makers how to stay them, we reproduce a part of a report by Sir William Fairbairn.

A boiler had burst in Rochdale, in July, 1854, and Sir William Fairbairn was deputed to visit the spot and report upon the explosion. In his report he says, "How careful ought we, therefore, to be to *look to the valves*, to regulate the fires, and to keep down the pressure below the dangerous point of resistance; and how very serious the responsibility, when either from ignorance or neglect, the force is allowed to accumulate beyond all powers of resistance. Steam-boilers of every description"—(we beg of our readers to note carefully the following words, as Sir William Fairbairn's report does not make a merit of the weakness of a boiler)—"should be constructed of sufficient strength to *resist eight times* the working pressure, and no boiler should be worked, *under any circumstances whatever*, unless provided with, at least, two, I should prefer three, sufficiently capacious safety-valves. . . . These provisions made, I would, under public sanction, determine that no steam-boiler should be

* "Useful Information for Engineers," by Sir William Fairbairn. Fifth edition. Longmans.

used without them." These words referring to the factor of safety of eight, not as something then new, be it remembered, were written in 1854; the *Thunderer's* boilers were built in 1870. It is not a difficult problem to solve whether the rule requiring a factor of safety of 8 is of more ancient origin than the *Thunderer's* boilers. Nor is it easy to understand why fresh scientific experiments are wanted while the old rule is ignored.

The rules which every tyro in engineering may be expected to know are that the cylindrical outer shells of boilers should be constructed to withstand, when cold, six times their working pressure; that flat surfaces, owing to the difficulty of getting the stays to bear equally throughout, should be constructed to withstand, when cold, eight times their working pressure; that stay iron should never be placed so that it has to withstand, when cold, a greater tensile strain than 5,000 lbs. to the square inch of section; and that the hydraulic test should never exceed one-third of the ultimate (cold) strain in cylindrical boilers, or one-fourth of the (cold) strain in boilers with stayed-flat surfaces. There is no doubt that manufacturers of marine engines must know all this practically, as being the substance of the rules enforced before a passenger certificate is issued for any steamship. The *Thunderer's* boilers may be taken as having had an ultimate bursting strain of 100 lbs. to the square inch. The working pressure was 30 lbs. to 32 lbs., or about one-third instead of one-eighth of the bursting strain; and the cold-water test was 60 lbs. to 65 lbs.—i.e., two-thirds of the (cold) ultimate bursting strain instead of one-fourth. Are, then, the "further scientific experiments" recommended by the jury intended to be made in order to determine that a factor of safety of eight is unsafe, or that the *Thunderer's* boilers were safe? In the evidence of Mr. Bramwell, we fail altogether to discover that for flat-stayed surfaces a factor of safety of eight is not safe, or any expression of opinion from him that 30 lbs. was a safe pressure for the *Thunderer's* boilers.

Let us, however, quote from another well-known and highly-valuable book.* Mr. Robert Wilson says:—"As a rule, we may use for the working pressure of new boilers or those whose condition is known and regularly ascertained at intervals from six to twelve months, a factor of safety of five or even somewhat less, and for those whose condition is not so well known a factor of safety of six to eight, according as the nature of each case may demand." Can anyone be found who will say that the nature of this case, viz., the front of the boiler being stayed to the plates of the uptake that could not be internally examined, and was

* "A Treatise on Steam Boilers." By Robert Wilson. Third edition. Lockwood and Co.

subject to the impact of flame, did not demand a greater factor of safety than three, or did demand a less factor of safety than eight?

Let us take another book.* Anderson says of a boiler he has been describing:—"The ultimate strength at the weakest point is thus equal to a pressure of 472 lbs., and the boiler would be perfectly safe if worked at 60 lbs. steam pressure, so that $\frac{472}{60} = 7.86$, showing that it would have a margin of safety fully seven-and-a-half times the working pressure, which, however, is *not by any means* too much for a *new* boiler, because corrosion and other causes will soon reduce the original strength." He was then speaking not of a boiler with any flat-stayed surfaces, but of a boiler cylindrical in form, with hemispherical ends, and he goes on afterwards to show that boilers with flat surfaces should be exceptionally well stayed.

Again, Rankine says,† that "the best experimental data respecting the strength of boilers are due to the researches of Mr. Fairbairn, especially those recorded in his work, called 'Useful Information for Engineers.'" He says also:—"Experience has shown that the plate, if its material is as strong as that of the stay, should have its thickness equal to half the diameter of the stay. If the plate be of a weaker material than the stay, its thickness should be proportionately increased." The same author, in another work,‡ says:—"The proper factor of safety is eight as for other parts of boilers."

Here, again, we pause to consider whether the experiments the jury recommend the Admiralty to make into "the construction and strength of flat-stayed surfaces" are intended to show whether the well-known old factor of safety of eight, or the *Thunderer's* new factor of safety of about three, is the correct one. Ought not the onus of proof as regards the factor of safety to have been put the other way, and ought not the makers and users of the boiler to have been called on to show why they did not supply safety-valves which would not stick, and why they so far departed from well-known practice as to produce a boiler with only the latter margin of safety?

Another writer, Bourne,§ says:—"It does not appear expedient in any boiler to let the strain exceed 4,000 lbs. on the square inch of sectional area of metal, especially if it is liable to be weakened by corrosion." The ends of some of the stays in the *Thunderer's* boiler were in the flame space, and were especially liable to be weakened by corrosion; so that

* "The Strength of Materials and Structures." By John Anderson. Longmans.

† "A Manual of the Steam-engine." By W. J. Macquorn Rankine. 1876.

‡ "Applied Mechanics," p. 297.

§ A Treatise on the Steam Engine, by John Bourne. Longmans. 1862.

according to such an eminent authority as Bourne, the factor of safety in that special part of the *Thunderer's* boiler, instead of being only three, that is to say, five below the established practice, ought to have been ten, that is to say, two above the established practice.

In the above remarks we have been treating of the strength of cold iron and of cold water pressure, but if we take the facts as they present themselves in a boiler at work, viz., hot steam, hot iron, and the parts unequally expanded, we find that nominally calculated margins of safety of six and eight are alarmingly reduced. For instance, we find that at an observed temperature of 1,111 degrees, the observed* diminution of the tenacity of an iron plate is .5544, and at 1,317 degrees is .7001. These are "observed temperatures" and "observed reductions of strength." We also find that by actual experiments in the Royal Navy the temperature in the funnel of the steamer experimented upon averaged 1,265 degrees, and some actually reached as high as 1,547 degrees.† In the case of the *Thunderer* the temperature in the funnel, if taken at the average, that is, at 1,265 degrees, would weaken the plate there .6715. The stays holding the part of the boiler that gave way were screwed through and slightly riveted into that hot plate in the uptake.

As regards the staying of flat surfaces another important element exists. Where a plate is in the uptake and is subject to the direct impact of heat and flame, and is not protected with water, it is not deemed prudent, according to the text-books, to insert a few large stays into the plate, for it is liable to become weakened to .7 of its original tenacity. The rule on the subject of spacing the stays is given by Wilson as follows:—At 80 lbs. pressure, for $\frac{3}{8}$ -in. plates, the stays should not be less than $9\frac{1}{4}$ in. by $9\frac{1}{4}$ in. apart; for $\frac{7}{8}$ -in. plates, $10\frac{3}{4}$ in. by $10\frac{3}{4}$ in. apart; and for $\frac{1}{2}$ -in. plates, $12\frac{1}{4}$ in. by $12\frac{1}{4}$ in. apart. The plates in the uptake of the *Thunderer's* boiler were meant to be $\frac{1}{2}$ in., and the stays were about 15 in. by 15 in. apart, the top row of stays being $20\frac{1}{4}$ in. from the row of rivets—an excess of spacing amounting in one case to $2\frac{3}{4}$ in., and in the other to 8 in. The stays were $1\frac{3}{8}$ in. thick, the plate was meant to be $\frac{1}{2}$ in. But Rankine points out that "experience has shown that the plate should have its thickness equal to half the diameter of the stay." Half the diameter of the stay in the *Thunderer's* boiler is $1\frac{1}{8}$ in., but the plate in the uptake of that boiler was only $\frac{7}{8}$ in.—that is to say, according to Rankine's rule, $\frac{7}{8}$ in. too thin. But if we take Bourne's rule, then the stays ought to have been $1\frac{1}{2}$ in., and the plate $\frac{3}{4}$ in.

Another point of importance is the hydraulic test. Bourne says that the "iron of boilers will only bear a third of its tensile strain without permanent derangement of structure." This being so, the ultimate strain of

* Bourne, p. 208. Edition, 1862.

† Parliamentary Paper 355, 18th June, 1870.

the structure of the *Thunderer's* boiler being 100 lbs., the hydraulic test could not, without permanent derangement, exceed 33 lbs., and the working pressure would then have been 16 lbs. The hydraulic test was however, 60 lbs. to 65 lbs., and the working strain 32 lbs. According to Mr. Bramwell's evidence, the boiler was safe to work at 17 lbs., and it was not prudent to work it a pressure of 30 lbs.

In the foregoing remarks we have attempted to string together a few of the facts and rules connected with the staying of flat surfaces in boilers. Through these points not having being put to the coroner and the jury, a splendid opportunity has been lost for discussing existing rules and practice, and for showing how far, at least theoretically, the rules and practice that guided the design and construction of the *Thunderer's* boilers and safety-valves are departures or improvements.

As regards the experiments recommended by the jury, we have no doubt that, if carried out, they will lead to some satisfactory results. But in the meantime we would venture to suggest that, as safety-valves can be made that will not stick, and as the established rules are safe and well known, and have been in operation for nearly a quarter of a century, whether it will not be as well to employ *safe* safety-valves, and in the words of the jury, whether it will not be to "the benefit of the public generally" that the existing safe, well-known, well-tried, common-sense old rules as to staying flat surfaces be acted on until new rules are evolved from scientific experiment.

In the above observations, we have not referred at all to the Board of Trade rules; which, although alluded to in a hazy and uncertain way during the inquest, were never before the Court, and form no part of the basis on which the *Thunderer's* boilers were designed.

THE NEW MERCHANT SHIPPING ACT AND FOREIGN SHIPS

AS regards the precautions taken for increasing the safety of human life at sea, the Merchant Shipping Act of 1876 differs but slightly in principle from the temporary measure passed at the close of the Parliamentary Session of 1875. The most important clauses of the Act of last year were those relating to the detention and survey of unseaworthy ships, the marking of deck and owners' load-lines, and the stowage of grain cargoes. Sending an unseaworthy ship to sea was made a misdemeanour; additional powers were given to the Board of Trade for the detention of ships upon suspicion of unseaworthiness, owners were required to indicate by load-line the maximum limits to which they intended to load their vessels, and

grain cargoes, loaded in bulk, and unsecured from shifting, were prohibited. It will be seen that the new Act re-establishes the principles laid down in these clauses, and also deals with the deck-load question. But, with the exception of the point last mentioned, it contains nothing additional of importance bearing directly on the question of safety. Parliament appears to have at length satisfied itself as to the extent to which legislative interference with the shipowner is justifiable. It has rejected, in the clearest manner possible, the proposals for compulsory classification, universal survey, and a Government load-line; and the supporters of these schemes must now feel convinced that far more cogent reasons than those they have hitherto adduced will have to be brought forward before the country will put their theories into practice.

Apart from the question of safety for human life, however, the new Act deals with a matter of the very highest importance, both to the shipowner and to the nation at large. We refer to its bearing on foreign ships. The foreign shipowner has hitherto been the bugbear that has threatened to reduce to nought the best-laid designs of English legislators for merchant shipping. We have again and again pointed out that restrictions imposed only on the British shipowner must inevitably tend to drive his business into foreign hands, and Parliament seems at last to have recognised this tendency, and, boldly seizing the bull by the horns, it has legislated for foreign ships. Placed between the obstacles raised by the British shipping trade on the one hand, and the demands of certain enthusiasts on the other, it has solved the difficulty by a stroke of which the term daring is a mild description. The solution is simple and easy, it is true, and it must be confessed that, for the time, there is every probability of its being efficacious. The English and Canadian shipowners have now no cause to complain that they are treated unfairly as compared with foreigners, seeing that all must compete for the British carrying trade on level terms. But whether this new policy of the English Government is statesmanlike, is an entirely different question. To us it appears to be hazardous in the extreme. The burden of the difficulty may have been shifted, but in our opinion the method that has been adopted for its disposal is likely to produce in the future problems far more troublesome to solve than the one which has now been dispelled. By a single stroke we have placed ourselves at the mercy of every shipowning State throughout the world. We have bound ourselves, without the right of protest, to obey regulations of any and every kind that may be imposed with a view to insuring what any petty kingdom may consider safety for any British ship that may enter or leave its ports. Not content with merely assuming to ourselves the right of deciding how foreign vessels may be loaded in British ports, we have laid down rules to be observed by foreign vessels in their own ports

when they happen to be taking on board cargo that is to be delivered in the United Kingdom. It seems to us that this latest addition to our merchant shipping law contains about the most dangerous international principle that any maritime State could establish. And, of all nations, England should have been the last to set up such a precedent, for she it is who has most reason to apprehend serious inconvenience and injury from its enforcement in the future. It is true the new theory assumes a similarity of treatment of all vessels, whether home or foreign, and we have no doubt that, as a rule, a law of this kind would be worked by the executive officers of other nations with a degree of impartiality by no means inferior to that which will be exercised by our own. But it is difficult to look forward with satisfaction to the indiscriminate interference with British ships on the part of any kingdom or petty republic that may choose to set up a standard of safety and sea-going efficiency. In the discussions to which the recent agitation gave rise many British ship-owners professed to care not what regulations were imposed, as long as they were laid upon British and foreign vessels alike. It would seem that in fixing their attention upon the immediate evils created by unequal terms of competition, they quite ignore the possibility that the suggested alternative of legislating for foreigners might eventually produce ills of a far graver character. Their professed complacency will, probably, give way to a very different feeling, if they find that their vessels, loading in the United Kingdom, must comply not only with the requirements of British law, but also with any regulations that may have been laid down by the authorities at the foreign port of her discharge. The English law empowers any surveyor practically to decide when a foreign ship is to be detained on account of improper loading; it also decides in certain cases how foreign vessels, loading in foreign ports, and bound for the United Kingdom, shall not be loaded. It professes to have discovered certain standards of safety, and imposes penalties on all who fail to comply with its requirements. This would be all well enough if the matter ended here, but, unfortunately, this sword of safety that England has taken up, is a double-edged one, and cuts quite as keenly one way as the other. It is more than likely that the initiative which England has now taken will be followed by other powers; but it is extremely unlikely that other nations will enforce rules of safety precisely similar to our own. There are few terms more vague and indefinite than the term seaworthy, but we have now bound ourselves to abide by any requirements that may be established by any foreign Government who may choose to interfere with British ships on the plea of endeavouring to add to the safety of human life at sea. This by itself is a serious contingency to look forward to, but when to the inconvenience of harassing and uncertain

regulations is added the risk arising from the exercise of what may be termed individual feelings of national jealousy and partiality, by executive officials, it is impossible to contemplate the new position of affairs without alarm. It may be that the English shipowner can afford to make light of restrictions that are imposed on foreign vessels loading in the Mersey or the Clyde, and upon foreign vessels arriving in the United Kingdom with cargoes, as well as our British ships under the same circumstances; but when this new doctrine of indiscriminate interference is worked the opposite way, and British ships loading in Peruvian ports, or arriving with cargo at Cadiz or Bremen, for example, are expected to comply with local regulations, the matter will appear to the British owner in quite an altered light. When his ship is detained on the ground of improper loading by the authorities at any foreign port, or when she is laid under a heavy fine for daring to arrive in what has been declared to be dangerous trim, it will be useless to appeal to the British Government for protection. The very most the home Government could now do in a case of this kind would be to make a mild suggestion. The great principle of allowing no such interference as this with our vessels has hitherto been maintained on every hand, but now all has been swept away, and we have placed every British ship literally at the mercy of the authorities at every port at which she may touch throughout the world. It is now open to all nations to take up this foreign survey question, and to treat our vessels precisely as we have assumed the right to treat theirs—interfering arbitrarily with their loading, or fining them for arriving with more cargo than is considered safe by the authorities at the port of arrival.

It seems to us that this interference with foreign ships is the most serious mistake that has been made since the question of merchant shipping legislation was first mooted. Indeed, it is difficult to see a limit to the evils for which a way has been opened by the adoption of this principle. The mischief has been done, but to what extent only the course of events can reveal. Those who introduced and supported these clauses bearing upon foreign ships have certainly made a striking addition to the English Statute Book, but they have little reason to hope that time and experience will add anything to the credit of the performance they have achieved. It seems to us that what has been most lacking on the part of the Government during the progress of recent legislation has been a firm and clearly defined policy. Efforts have been made to satisfy and conciliate everybody, and the usual result of endeavours in this direction is so well known as to have long since become proverbial. *Æsop* has told us what kind of success attended the old man who attempted to please all his neighbours with regard to the management of his ass. That unfortunate animal found a watery

grave through the suggestions of its would-be benefactors. The tale is a simple one, but the moral is thoroughly sound; and of late it would seem that our merchant shipping has been placed in a position very similar to that of the ass in the fable. During the sensational agitation which has recently been so rife, it has especially behoved those who have been entrusted with its management to maintain a firm stand in the face of the many wild schemes and suggestions that have been set afloat. To some extent this has been done; but we cannot help thinking that, as regards this legislation for foreign ships, and more especially (in the case of the deck-load clause) for offences committed by foreigners without British jurisdiction, the Government must have yielded in spite of their own convictions. Some credit is due for the deference that was shown to the Canadian law by the insertion of the three feet exception for light wood in the deck-load clause. But even this attempt to keep the English and Canadian laws in harmony was somewhat ungracefully made, and the clause was finally carried in a manner that gave offence on all sides. Had more resolution been shown when the deck-load question was under discussion in the Commons, the absolute prohibition of deck-cargoes during the winter months would not have been carried, and the angry discussion that took place on the final consideration of the Lords' amendments would have been avoided.

It is difficult to see how any provision can be made to meet the evils which threaten to arise from the new system of interfering with foreign ships. Mutual agreements and treaties would be of little avail, since the circumstances which call for such interference must always remain indefinite and uncertain. There can be no fixed rules, and each case must be judged on its merits by local surveyors. If this right to detain foreign vessels be assumed generally by other nations, the shipowner will always be uncertain as to the amount of cargo his vessel will be allowed to take on board at any particular port. What would be passed at Genoa might be considered highly dangerous at Marseilles, and what would pass muster at Riga might be declared unsafe at Valparaiso. As regards deck cargoes, it may be possible to come to an understanding with other nations. We may perhaps succeed in persuading other Governments to follow our example by prohibiting such cargoes during the winter months; but even this is doubtful. The wild and uncompromising enthusiasm in the cause of humanity that has called so loudly in England for thorough-going precautions against the risks that have hitherto been looked upon as inseparable from a sea-faring life has not yet spread throughout the world; and among those who have given the matter careful consideration there are many who are still convinced that harsh remedies serve only to aggravate the evils they are intended to remove. Deck-loading has already been prohibited by law, but the prohibition led merely to the

building of a class of vessels with high poops, in which timber could be stowed. In this way timber was carried in strict accordance with the law, but vessels so loaded were far more dangerous to human life than as if a portion of their cargoes had been carried on the open deck. Experience will tell whether evasions of this kind will again be practised, but there are no reasons for concluding that they will not. As regards profit, there is perhaps no carrying trade more closely cut than the transport of timber ; and it is idle to expect that the spirit of competition will not impel shipowners to avoid a regulation that will deprive them of a very considerable percentage of their net gains.

We have said nothing as to the chances of international difficulties and complications likely to arise from the enforcement of the new deck-load law. The prohibition will chiefly affect foreign vessels, but it is difficult to say in what light foreign Governments will look upon the efforts we are making to protect our own interests by not allowing their vessels to discharge deck-cargoes at our ports. They may take a generous view of the new regulation, and consider it as being framed for the protection of their seamen's lives, or they may look upon it as a piece of unjustifiable interference with matters in which we have no right to meddle. The law will bear principally on Swedish and Norwegian vessels. During the last three years there has been an annual average of 2,500 vessels engaged in bringing timber to seven of the principal ports in the United Kingdom. Of this average, Sweden and Norway furnished 1,480 ; England, 687 ; Germany, 180, and various other countries the remainder.* We do not anticipate any serious protest on the part of the Swedish, or indeed of any foreign Government. And in the event of a protest being made, it would be by no means difficult to justify the new principle by plausible arguments based on the ground of humanity. International law is so vague and uncertain that considerable latitude may be taken in matters of this kind without infringing any of its recognised rules. It is not a sudden difficulty that is to be apprehended, but rather a constant succession of minor difficulties arising from the destruction of a great principle that England has hitherto succeeded in maintaining inviolate.

It is true that, in the case of the detention of a foreign ship on the ground of improper loading, the Act authorises the consular officer of the State to which she may belong to select one of the surveyors, or assessors, as the case may be, by whom the question of her release or further detention has practically to be decided ; and it will be urged that in the event of any foreign Government taking upon itself the right to detain British vessels, it would be the duty of the British Government to insist on the establishment of a similar safeguard. But a provision

* See Parliamentary Paper, No. 195, Session 1876.

of this kind would be of very trifling moment when weighed against the risk and inconvenience that must inevitably arise from the assumption by any foreign State of the power to interfere at all with the loading of vessels belonging to British owners. Complaints are sometimes made of the frivolous and vexatious nature of the ordinary port regulations at certain places; but port regulations, however trivial, are always definable, and therefore not difficult to obey. But of a regulation requiring "safe" loading, the very reverse of this may be said, and shipmasters will find that to comply with requirements which are evolved spontaneously from the brains of local surveyors, will be a very different matter to falling in with the fixed rules of red tape. There are those who maintain that seaworthiness and sea-going trim are matters about which mistake and uncertainty are well nigh impossible. If this be so, what a terrible responsibility rests upon those officers who are amenable for permitting H.M.S. *Captain*, for example, to put to sea. But although we all know now that the *Captain* ought never to have left smooth water before she foundered, this was a fact of which all were in profound ignorance, and there can be no doubt that those who were directly responsible for her construction had demonstrated her complete safety to their own thorough satisfaction before she was allowed to steam out of harbour. What happened is too well known to need repetition, but if this be the result, when the very highest talent the country can obtain is employed, what are we to expect when a second-rate Peruvian, or Spanish surveyor, for instance, has to decide upon a vessel's sea-going fitness? To this question we must leave those to find an answer who know so well what seaworthiness and "proper" loading mean, that they are unable to see where misapprehension on such points can arise.

"OUR SEAMEN."

BY ONE OF THEM.

To the Editor of the "Nautical Magazine."

Bushire, July 2, 1876.

DEAR SIR,—You have often said you did not get information from seamen on account of excuses they made about Queen's English, and said that was your business, if we only give you the ideas. I send you some to do with as you like—if you can make anything of them.

I give my name in good faith, and not to be published. All I relate is fact.

I have read a good many of your magazines in my time ; and derived much information and amusement from them, and have volumes dating as far back as 1844 ; but even those as well as the present have a growl at the sailor. Shipmasters said he was going to the dogs then in comparison to what he had been in former years. I only formed acquaintance with him in the early part of 1850. Inflamed with reading sea-tales, I determined to be a sailor. But that was not so easy done as said, if one's parents objected. In Aberdeen, before a lad could go to sea, he had to be bound apprentice for four years, and during that time he received the large sum of £24 ; and 6s. per week board-wages when in Aberdeen, as while in port the crew lived on shore ; but prior to getting any ship-owner to take him, two sureties had to be got that they would pay £24 to the owner if he did not serve his time ; hence, when I would insinuate to my father such and such a ship will be requiring a boy, I would be met by the reply, "Where am I going to find securities for you ?" Reason, in reality was, the poor mother in an agony of tears, that a boy of hers should go to sea, and be knocked about by bad-humoured skippers and sailors—worse than all, perhaps be drowned. However, it was well known among boys that there was very little difficulty as regards getting to sea in the Northern ports of England. Was it not handed down from boy to boy in school traditions how so-and-so had run away and had come back years after a full-grown man and devil-me-care sailor—plenty of money, and the delight of all the girls ? Suddenly he cleared out again, and faint rumours were heard of him by letter from the other side of the world—while his former schoolmates, from Monday morning to Saturday afternoon, trod a monotonous round with as much liberty of action as a horse in a treadmill. One fine afternoon I got on board of a steamer, and found myself in Shields next morning, with what I stood upright in and twopence in my pocket. Now, I shudder at what must have been that poor mother's sufferings that long night, when she got the information from other boys in the secret. It was upwards of four years before she got sight of me again, and had only had a peep at me twice in twenty-six years time ; her other two sons went the same way as they grew up ; however, there is none of them will be ashamed to face her in the world to come, according to her own account. My first night in Shields was one never to be forgotten, and I have seen some curious things, too, in my time in sailors haunts. Next evening, I was picked up by the captain of Shoreham schooner, who wanted a lad ; there I got a sheet of paper and a penny, and wrote home at once that they were to be no longer uneasy about me, as I had got a ship at last. We sailed for the Baltic next day. When symptoms of the sea disease commenced to show on my next brother, a hint was given to the steamer people ; but one fine day he and two other lads, all

under fourteen years of age, started for Shields without a farthing in their pockets, begging a piece of bread at farmhouses, where they were sometimes allowed to sleep; when they came to bridges where toll was required, having no money, the rascals coolly stripped, tied their clothes up in a bundle, kept company according to previous arrangement, swam the river, and dried their clothes on the other side. They were about fourteen days on the tramp; but many streams they had to go up the banks ten or twelve miles for a suitable place to cross, and on reaching a river late in the day they would not cross until the sun was well up next day to enable them to dry their clothes. They all got ships on reaching their destination.

I was not many hours on board the ship I had just joined, ere I discovered I must drive all of Fenimore Cooper's tales out of my head; as for chewing tobacco and drinking grog, to my horror I found I would not be allowed to smoke on deck until I had been two years at sea; as it would be a reflection on the men, who would be liable to be taunted by other men visiting the ship, for not keeping boys in proper order, in practice, and good behaviour. I found that by the time I had served twelve months I was allowed to be the possessor of a pipe and tobacco, and smoke below with the men, but not when strangers were present. Poor me, that night! I pitched my pipe overboard, and as I was always civil and tried to do my best, within a month they would say to me, "Boy, go down and light my pipe;" that tacitly implied I could have two or three good pulls at it before I brought it up. I often laugh now when I call to remembrance old scenes, how jealous those men were of not allowing boys to be men before their time. If boys were held in such check by the men, I can assure you they looked up with a pretty considerable deal of awe to the captain and mates.

Here let me say that during the years I lived with the sailor, in different ships and different voyages, from the collier to the Indiaman, and been round the world, and passed anxious nights looking out for ice at both ends of it, I never met the sailor that taunted me because I would not touch liquor. I never did taste any liquor that I could say I liked. I have often been praised by them for my temperance. Once we were paid off in Havre, in a ship from Calcutta; we could get our meals in a boarding-house, three francs a day, but they would not allow us to sleep there—police regulations, I dare say, was the reason—and as the steamer only left weekly for England, the men had to remain several days before they could get away—that was the sensible ones, who preferred having their spree in England. It is due to the ship *Akbar*, of Liverpool, to say that her captain did not want to get clear of us; we might have remained by her, and returned to England, but the crew would have had no money to have their fling. Ten of the crew, on getting their pay, insisted on me

taking charge of from £16 to £18 each, reserving a couple of pounds each for a fling that night. As there was no where for one of us to lay our heads only in what English people call improper houses, it was no use me pleading that I had to pick out one of those houses myself after dark ; I was always met with the reply, " You never touch anything ; you are safe wherever you go." I hove myself on the tender mercies of the frail sisterhood, and they took care of the money for the night. (These unfortunates are the daughters of " men," and have in nearly all cases been led astray by cool, wary, scoundrels, who are seldom caught. If a drunken or sober wretch comes in contact with, and abuses one for what she is, she has a perfect right to make him pay for his whistle.) Next day, sooner or later, by ones and twos, these fellows would come along—money all gone ; had such a go ; hardly knew where they had passed the night. " — the odds, Scotty." When I would attempt to talk to them—" Give us another five pounds ; that makes seven. I tell you I lost my coat last night, and have to pay the tailor for this one I have on. If you don't believe me, come along." It was the same man that gave him a coat, within eight days, and bade good-bye to five or six of them on board a New York packet. Money all gone, and a month's advance also, with the old stereotyped phrase, " I have been a — fool ; I will be better next time, and go home and see the old folks before I spend all my money." The sensible ones went away by steamer, and had their fling out in England, and got English ships. I, with four others, got a run to Shields in a collier brig, for which we got £4 each. Within three days of arrival there, one of them had not a penny left from the time of his joining the *Akbar* until the day of discharge : his fixed intention was, as it had been for nearly ten years, to go down home to some place in Yorkshire and see his friends. Poor Bill ! I went to hunt him up, and bid him good-bye, as during the voyage I had been pretty well under his wing, as I was but a tiny chap. He was a merry, good-tempered, fine-looking fellow, and a prodigious favourite with the women. He was sitting on the counter of a public-house, laying the law down to the landlady and her daughters, who were in roars of laughter. On seeing me, he exclaimed, " Here I am, Sandy ; it's no — use—can't get home this time ; not a ——— cowry left. Never mind, some ——— boarding-house master will take me in for my chest, if I only knew where the ——— thing was." On making searching inquiries of him, I discovered that it had not been removed from a public-house where he had left it, nominally, for a short time, while he had what he called a look round how the land laid. He hoped to get a passage to London in some coaster.

The Southern-going man—" East Indies and China"—looked down on a coaster, although the latter was far better paid ; in fact, I

observed they were two distinct classes. The sailor brought up in the coasting trade, as a young man, would air his wings and go to North America and the Mediterranean, the latter place seldom after he was married, which generally occurred long before he was thirty years of age; then it was the Baltic, North America, Greenland, and the coasting trade. They could tell the pedigree of every ship of that class belonging to the port: how many men had been swept off her decks coming from Quebec, in the fall of such a year; who was her captain then, and where he was now. The old *Peggy* was sixty years old, if she was a day, and, if she made a little water, she would carry deals with the best of them; the old lass was as dry as a bone at sea. "They built ships in those days," an old greybeard would say, "and that was more than they did now. — if he knew what they were coming to now-a-days! Boys were men, and men who had been to sea, and able to do a man's duty long before the present generation's fathers and mothers had come in contact, were only old fools or anything you would like to call them. — if he would sit down below and here such talk any longer; such never occurred when he was a young man;" and away he would go on deck, swearing by *Peggy* and her class—"Rare old craft they were; 'tween deck beams were about 80 ft., upper-deck 15 to 20 ft. I recollect in '52 one of them, upwards of 100 years of age, by report, was lost in the Baltic. On our arrival in Shields, she was the talk of even the girls—good old lass had done her work well, and at the last had not drowned a man." I never knew of a coaster that could not get a captain or mate; I have known them not to be able to get crews at the wages of the port. Give increased wages proportionate to the risk, and they would get men. It was not the slightest use the mate putting an old brake and rusty bolts in the pump. I have known men go off to a craft, forcibly draw the lower boxes, sound the pump—skipper shouting for the water-police—then show him the sounding-rod after half-an-hour's interval: "What do you call that, you — liar; coming on shore and saying she only makes so much an hour? Now, give us so much for the run, and we will risk it." The men coolly calculated the risks. There are always dare-devils in all ports, who almost live from hand to mouth. When they had money, they would loaf round public-houses; not go to sea until they were forced. Then, to use the North country phrase, "When needs must, the devil drives," these men manned the old leaky craft of the port, when, to use their own words, "If there was any wind when loaded, they were lucky if they did not have more than two hours at the pump each watch." And it was a law in those ships, inexorable as the law of the Medes and Persians, that in any case of all hands being called to shorten sail, before they went below again both pumps were rigged; directly she sucked, the

watch entitled to go below would give a shout, "There's a suck," and quit the pump and go below; by that means the watch on deck had a fair start to keep her free. The watch, on coming on deck, before they took charge, would see that the relieved watch made the pump suck. Steady men did not go in these ships; their services were required in the good ones, where they had as good pay but less pumping. Men will die and ships will wear out; but these reckless men brought those ships to their legitimate death when no longer able to go to sea. The old ships commanded no greater profits than new ones; for increased risks men demanded more pay; there is such a thing in insurance as war risk; the time came when, on account of risks, pay ran away with all the profits; then the ship was broke up for firewood, or whatever she would fetch; good men, good ships—bad men to the bad ones; they only worked when the devil drove them; when they returned with their earnings, they gave the police employment, and were a nuisance to their neighbours; when they and ships disappeared, they were no great loss to society—no one forced them on board. Apprentices kept men posted up in the qualities of a ship, but now all that is changed; a seaman buys a pig-in-a-poke now. He has to hang round a shipping-office door, where he will see a board hung up, with a list of ships that will be shipping hands; if hands are scarce, a policeman will shout, "*Mary Ann*, Canton, £2 15s." If plentiful, men will crowd the door, and, in some cases, tip the policeman half-a-crown to tip them the wink when the skipper of that ship enters the office; or, if he is not going to appear on the scene, then when the shipping-master is going to open that ship's articles, so that he may be close to the door when it is opened, and rush in; that was what it had come to in '55, in Well Street shipping-office, the last time I shipped there. As late as '58 good men went to the docks and picked their ships. Captain, if he approved of the man, would say, "Be at the office such an hour, and if you come I will ship you." Now they are all reduced to one level. If *Mary Ann* is a bad ship, and he won't go, a cry arises, according to the whim of the public, "Oh, the bad sailor;" "Oh, the greedy owner wants to drown the poor sailor." Law has put them both in the position of the man who tried to carry his donkey; both are dissatisfied, and the public is not pleased. You may say no one prevents him from going to have a look at his ship before he ships; true, but that's what I call theory; if he carried it out in practice he would never get a ship. While he was looking around *Mary Ann*, her skipper would have just ascertained the day he would be able to go to sea; not the slightest occasion to have the men on board until such a time; to-day he had an hour to spare, he went to the office and shipped the hands; they are to be on board such a date. My friend, who has been down looking at the *Mary Ann's* pumps, &c., makes up

his mind that she is safe ; on coming back, he finds *Mary Ann's* name struck out ; hungry men could not wait ; he will not go on such a goose errand again. Shipping offices gave great facilities to owners and masters in procuring crews, as it brought men to a central place, therefore there was more competition. Captains could pick and choose, and complete the whole affair in an hour's time, but then the average quality of the men was good.

Oh, Master Plimsoll, there is no doubt your intentions are good, and your system would be practicable, could you enforce it on the shipping of the whole world ; but as you cannot, I am afraid you will make a darned mess of it ; if you succeed, English shipping will be so weighted that it will not be able to stand it, and they will have to go the way of the collier brigs I have quoted. As the expenses of inspection and restriction will allow no profits, if you succeed you must then start another bill, to the effect that seamen must have a set scale of pay. Then, that all domestic servants must have a regular set of hours, be properly treated, and have their provisions and quarters inspected by competent authority, then I will pitch up my ship, and feel so grateful to you, that I will saddle myself on you, and serve you for half-pay as first-class domestic. All classes but the seamen have advanced—he has gone back rapidly, and why ? Because an unseen party has said, you shall give him this ; you shall not do that ; he is only a child. Do you wonder that a feeling has arisen in the sailor's mind that he is never safe unless he gets everything according to Act of Parliament. He will get it, with a vengeance, and nothing more. The captain will look out to take all he can out of his darned hide. And there is no mistake, it is done. If freights are dull in a foreign port, drive him out of the ship, he is only eating his head off. Who cares ? We meet with a growl, and part with a curse. Poor Jack ! Gently taking such care of you, has thrown you pretty well where the Samaritan found the man who fell among thieves. My belief is, that the whole of the legislation on his behalf is a deep-laid scheme to keep him down ; it would be far better to give him a kick in the stern, and say, "Go out, you blackguard, and make your own contracts. But if once you put your name to paper on board of a ship, you shall go in her, should you sink or swim. It is no excuse for you that the scale of provisions is short or bad ; that was your look-out before you signed." Jack would catch it the first year or two, but by the third matters would be pretty equal ; by the fifth year he would not frighten anyone about scurvy ; but then, alas, what would become of the great body of insurers ? No overloading ; no driving through crowded channels in fogs and dark nights ; can't stop five minutes to sound, might lose a tide. Is not all Liverpool in a tremor to see which of the two steamers, which left New York together, arrives first ? Who can afford to lose

10 minutes to sound, even in doubt? No; drive on, and chance it. If she strikes, the whole public howls, "Criminal! why did he not sound?" If he succeeds, "Splendid navigation! Britons for ever! 5 days, 4 hours, 10 minutes, $2\frac{1}{2}$ seconds, by stop-watch. When Jack is allowed to walk alone, he will stop all that. "Let the people lose their bets, it is not going to be at the risk of my life, or other poor devils' in some ship we may run down in this thick fog,"—and still people will make money. The proper check on the interested man is the man by whose direct assistance he is making money,—no intermediate party.

There is one thing that ought to be done—make it criminal to advance one penny to a sailor before he has earned it. No advance to be of less than one sovereign; that is, until he has *bonâ fide* earned that amount. All advance to be coin, no notes. Then there will be no longer inducement for unscrupulous people to make the sailor drunk and insensible to ensure his remaining on board the rattle-trap ship his gambling style of shipment has inveigled him into. Fine care is taken that he is put on board the ship at the last moment; then a slight pinch of snuff, dropped into the parting-glass in the fore-castle by the boarding-house runner, ensures Jack being quiet enough for the next twelve hours. Three days after, his advance-note is presented, and paid by the agents; that is, if no intimation has been received that the man has recovered his senses, and refused to proceed.

The advance-note at all times has been a curse to all concerned. It supported organised gangs in North America, who would go on board ships arriving in the spring, and, if men did not come willingly, in many instances they were forced out of their ship and taken on shore, and kept in a state that—to do the men justice—they did not much object to (drunk), thereby an artificial scarcity was made of the article. Who can tell that some skippers were not in league with the gang? police would not know where the men were concealed. An advance of wages—one month-and-a-half-advance—covered all risks of the gang. It was very little of it the sailor got; if he was an obstinate chap a full pinch would keep him quiet enough for two days. Skipper said I must get hands by hook or by crook; I have got him; he will come to his senses by-and-bye; but when I arrive at home, I will shout with the best, "Oh, the bad sailor!" No advance, no Shanghaing gangs; no advance, no boarding-master will keep him longer than he has got money; then he is bound to go on board of his ship sober, as no publican will give him liquor. Forbid any court of law to enforce payment of any item appearing in a sailor's bill of wages, such as slops, &c., &c., &c.; let that rest on the sailor's honour, then captains will have no inducement to look for ragged, wretched men, to make money out of them by their slop-chest. Then sailors will no longer be able to calculate chances such

was when they could not get crews, then the owner would have sold them for firewood. If I am a steady, careful man, I commence with old ships; by-and-by, I get good ones. Were it not for the cursed laws now made, that support a lot of people who never risk their hides at sea, but pretend they know all about it, steady, good seamen would stick to the good ships because they knew them, commanders would come to know the men, and mutual feeling would spring up. Men would make the ship their home, and would anticipate an order, not eye each other, as they do now. The officer thinks, "— you, I am going to get all I can out of you; if I make you fly round I will get a name for smartness in this foolish mercantile world because it knows no better." The sailor looks at him and thinks, "You are welcome to get all you can out of me, and that is all. Am I not one of the country's pets at the present moment? Does she not make me stand at a shipping office door and make an engagement far from the ship that I am going to risk my life in? Were I to attempt to go and look at her before I signed, when I came back I would find her articles filled up, and so on with others. Therefore there is nothing left for me but to loaf round this infernal door and chance it; she may be a good ship, or may be one where it is pump or sink. If I have not gone on board dead drunk, my instincts tell me that much, so I prefer six weeks or two months in prison. Then when I come out I go to a low-class boarding-house. I know d—— well he will take me in and get me a ship, because he gets my advance note, and will look sharp after me that I go on board so drunk that there is no fear of me slipping away, as I am useless for two or three days, if not more. Meantime extra work is hove on my shipmates just at the time it is most wanted. Captain and mates are swearing, ship can't be worked properly, gets on shore. I am highly delighted. Captain ten to one is suspended for twelve months. If he has no money and got a family, d—— his eyes, he may be in the fore-castle with me in some ship before his twelve months are up." In time, if seamen are allowed to make their own contracts, there will be no advance notes; then supply will always equal demand, and that of the best. But then in that case, what is to become of our army of shipping office people, with their array of clerks and police, inspectors, and arabs of the streets. "No, no," says the legislators, "that would never do; we would have no work left." Besides, how the deuce would future generations be able to relate that we had invented a system that turned the devil aghast at the inhuman ingenuity of it? By a slow and steady system we brought it to such perfection in less than twenty years that employers and employed looked on each other with mutual aversion, and still we can't do without each other, but must form acquaintance and part in presence of a middleman,

whom we have to support, and in our hour of need devil a bit of assistance is he to us, beyond saying, "Oh, yes, he signed that." Quitting this office in different directions, they go, but generally meet one or two days after on board ship, where they break out and let each other have it. If a ship is lost, we generally manage to sling the captain up for six or twelve months. The chances are he has to go to sea before the mast, or starve. I consider the present merchant shipping law has the effect of making our seafaring people enemies of each other and making them fall into each others power at times. There is no class of property that has such a peculiar manner of returning interest as the money laid out on a ship. The only time she is earning money is if she has cargo from the time she is loaded. Then her expenses increase tenfold until discharge at port of arrival; then she commences to eat her head off again. When ready for sea a crew has been engaged three days previous, and to be on board in time they have got advance notes. On coming on board they refuse to proceed, time is lost, reference to a magistrate. At the worst, men can only be imprisoned. Put the whole world in prison, it will not compensate the owner to the extent of one shilling; neither will it make him make his ship a bit better, as from the absurd system of engaging the men far from the ship he can get others. Shipowner has lost nothing by the advance notes; they do not go to sea in the ship. Boarding-masters will have their eyes open next time. Men are sent on board drunk; if he can get them to sea for three days, he is safe. It is nothing to him if she is hell afloat; he is not there. Under such a system, is there any inducement for a seaman to be self-denying and good in constant contact with such men? Can shipmaster and officers improve in temper and morals? Instead of being bound together, they are like ropes of sand; unscrupulous men take advantage of it and overload their ships, and get them sailed as cheap as the honest shipowner, who, in nine cases out of ten, would like to deal with people as he would be dealt by. I say, speaking from my own experience, allow freedom of contract to the sailor; let him fight his own battle the same as other artisans. For a risky ship, he will, knowing the risks, demand increased remuneration, and will get it if supply is not in excess of demand; if it is, he will have to take what is offered or starve. I have a little more to say, but will reserve it for another letter, if you will allow me.

Yours, SCOTTY.

FISHERIES OF NORWAY FOR 1875.



WING to the physical features of the country, the extent of sea coast, and the magnificent fjords, the inhabitants along which depend greatly on the results of the fisheries for their support, at the same time that, financially, they form the staple resources of Norway, the results are naturally looked forward to with more than usual anxiety. Vice-Consul Crowe states that the Lofoden cod-fishery, which is the most important, exceeded in magnitude any take since the year 1860 ; it consisted of no less than 28,000,000 of marketable fish : 15,000,000 of these were salted and dried as buccalan, 7,000,000 were dried as round and split codfish, rendering at the same time no less than 52,000 barrels of cod-livers, and 28,000 barrels of cod-roses. Although the average price obtained in 1875 did not exceed that of former years, still taking into consideration the excess in number above the usual average take, the result was more than ordinarily remunerative to the fishermen. It may, therefore, be assumed that the Norwegian fishing population, resorting to the Lofoden districts, has been able to enjoy a richer result in money from their winter operations than of late years.

The number of boats engaged was 4,881, fishermen 18,808. The earnings of the fishermen are estimated as follows : with nets, £22 ; with lines, £20 ; with deep sea-lines, £18 to £18. If no loss of nets takes place the expenses are calculated at £11 5s., and the money earned above that sum is considered clear profit. For the line fishermen the expenses are £17 10s. A net boat complete, as at present in use at Lofoden, costs £42 4s. ; and an eight-oared line boat £18 18s. Small sprats are commonly used as bait ; the consumption is estimated at about 2.5 barrels per man, or in all 20,000 barrels, valued at from £11,111 to £13,833. Three steamers are constantly employed in supplying the fishing stations with bait. The majority of the fishermen at the close of the Lofoden fishery, annually proceed to the cod fishery in Finmarken, which regularly succeeds the former—after a short interval.

The Finmark or Capelin fishery, yielded a larger catch than that in any preceding year. The total amounted to 19,750,000 barrels, the highest quantity caught during the last six years. The fishery took place chiefly in East Finmark, or in the Varanger Fjord, where no less than four-fifths of the total quantity was caught. In West Finmark the fishery was a comparative failure. It must be observed, however, that this year the prices in Finmark were lower than those of previous years, which, doubtless, may be chiefly attributed to the abundant fishery in Lofoden. Nevertheless, the result was richly remunerative to the fishermen, and on

the whole the fishery, during the last few years, has so far generally improved as to assume a very prominent position among the Norwegian fisheries, so as to justify the large outlay contemplated by the Government for the enlargement and protection of the harbours of Vadsø, and other improvements, intended to promote the prosperity of the district. The number of men and boats engaged in this fishery during the season, amounted to 4,462 boats, and 16,006 men, which includes 779 Russians and Finlanders. The usual number of trading vessels visited the stations for the purpose of purchasing the fish. This year they amounted to 356 vessels, with a tonnage of 16,000, and manned by 1,704 men. Only 420 cod-roes were required in East Finmark to fill a barrel of liver, while in West Finmark it required, on the average, 600; showing, therefore, that the fish caught in the latter district were much poorer than those of East Finmark.

The aggregate value arising from the yield of the year's fishery, including the liver, may be estimated at £185,666, and the gain of each fisherman at £12; 9,250,000 of fish were prepared as round stock-fish, 510,000 as rotskjeer (split codfish), 9,980,000 as klipfish (buccalan), and 5,298 barrels of medicinal oil were prepared. Besides the cod-fisheries described above, there are those of Nordmøre, S'oudmøre, and Romsdal, which have all been more remunerative than usual. The catches altogether make about 6,589,000 fish, of a total value of £131,156. Adding to these the yield of the fishing stations of Fosen and Namdal, which last alone produced 750,000, it may be safely assumed that the aggregate take will have exceeded 50,000,000 of codfish, or between 7,000,000 and 8,000,000 more than the annual average. Before closing this survey of the cod-fisheries, Vice-Consul Crowe mentions the discovery that has been made lately in France, that grasshoppers (after being stewed or fried, and then made into a paste) form an excellent and successful bait for the great French sardine fisheries; and this naturally causes some anxiety among the fish traders of Norway, as the annual export of cod-roes to France alone amounts to upwards of 40,000 barrels, solely to be used as bait for those fisheries.

The catch of the large herring (*clupea harengus*) fishery of last winter, which took place mainly before Christmas, 1874, but the product of which was only exported in 1875, amounted to 275,000 barrels, estimated at £74,222, which, with the exception of that of 1871 (amounting to 700,000 barrels), is not below the average of this very uncertain fishery. The falling off or erratic movements of the spring or large herring, indeed, of all herring fisheries on the Norwegian coast, is in a great measure attributed to the prevalence of cold weather, and consequent low temperature of the sea, which, to some extent, may be caused by melted snow running into the fjords and bays from the numerous rivers. This

cold water is supposed to be heavier than the comparatively warm water of the gulf stream, and sinking to the bottom of the stream acts as a cold current to the shoal of fish. Now, as it is well known that herrings seek a warm temperature for spawning purposes, it may be surmised that the fish, on meeting a cold brackish current, become frightened and, in consequence, have deserted these shores. Much attention has been lately paid by scientific men to this important subject, but, as yet, no satisfactory result appears to have been arrived at; the above cause, however, is regarded by some as a reasonable explanation.

With regard to the mackerel-fishery, it is only recently that the shipping of mackerel, packed in ice to England, has become of importance to Norway. At present, after the herring and cod-fisheries, it may be considered the principal of the Norwegian salt-water fisheries. It extends, not only along the south coast but also along the west coast as far as Bergen, and employs a great number of hands, who generally make a fair livelihood. The fishery takes place from the month of May until the middle of July, a good distance off the land, often from twenty-four to thirty-two miles at sea. The number exported in 1875 was 8,500,000, valued at £87,408. This is independent of the value of the home consumption, which is considerable, considering that this fish forms the staple support of the fishermen and of the inhabitants of the district in the vicinity during the season. The ling-fishery is principally carried on by Swedish fishermen, and on Swedish account; on the banks stretching along the coast of Norway, from latitude 68° to 70° north, 21 smacks, with a crew of 265 men, fished during the past season. Of this number 16 were Swedish, the remaining 5 Norwegian, but these as well were principally manned by Swedes. The total catch amounted to 2,457,000 lbs., of ling 240,480 lbs., 82,960 lbs. codfish, beside 565 barrels of liver and 168 barrels of roe. Most of the ling is salted and shipped to the Shetland Isles.

The Norway lobster belongs to the genus *Nephrops*, and is found in tolerable abundance all along the coast, but not beyond latitude 68° N., and not in the same abundance it used to be, owing to the destructive and irrational manner in which this fishery was carried on before the law for its preservation was passed. The lobsters are captured in simple wicker traps, made by the fishermen themselves. These are lowered to a depth of five or six fathoms, and placed at short distances from each other. The fish are attracted by a bait suspended to a line in the centre of the trap, frequently of common garbage, which, from their voracity, is generally attractive. The best fishing season is during the months of May and June up to the 15th July, after which date, the fishery is prohibited until the 15th October. Of late years the catch has seldom exceeded 1,000,000, representing a value of £22,500. The principal export is to England, and reached 400,000 lobsters, valued at £8,8

during the year 1875. Not any lobsters under eight inches in length are now shipped. The lobster trade, at one time, was solely monopolised by an English company who, early in the season, sent their fast-sailing smacks, specially fitted with tanks in their holds for salt water, in order to convey the lobsters across alive. This system is being changed, and now they are mostly shipped by the regular steamers in dry boxes; still, during the summer months, our smacks are to be met with in the fishing ports along the south-western coast, for the purpose of purchasing the fish direct from the fishermen and conveying them to England, although they no longer enjoy the monopoly of the trade.

There is scarcely a river in the whole of Norway in which salmon is not found and fished. It likewise abounds all along the coast from the Nas to the Varanger fiords, on the Russian frontier, as well as the numerous fiords and bays so frequent on the coast of Norway. The open sea, but not very far from the coast, is the home of the salmon during the winter months. Generally, early in the spring, it proceeds up the numerous rivers to the inland lakes, returning again late in the autumn. The sea fishery commences on the 14th February, and the river fishery on the 14th of April, both ending on the 14th September. The sea fishery is carried on solely with various kinds of nets, deep sea-lines rarely being used; that in the rivers with nets and the ordinary fly-rod. During the latter end of the season, the natives principally fish at night by spearing; this mode of fishing is carried on from a boat, the bow of which is provided with a kind of gridiron with burning wood—generally the roots of the pine-tree—which gives a bright light. The boat is then rowed quietly along the banks of the river, the salmon being attracted and astonished by the light, are then speared by the man in the bow of the boat, who is provided with a long spear having several prongs; skill, however, is required by the spearsman not to miss the fish. The rivers adapted for rod-fishing are mostly all rented by Englishmen, and bring their proprietors handsome profits, which they hardly anticipated a few years back. The salmon is principally shipped to England in the regular line of steamers, plying between Christiansund and Hull, although smacks are still employed in the salmon trade, as the fish-dealers maintain that the shaking of the steamers acts injuriously to the fish when packed in ice in boxes. As no official returns have as yet been received of the important shark-fishery, on the banks stretching along the coast of Finmark to Spitzbergen, there is at present no precise information upon this subject.

THE NORWEGIAN ATLANTIC EXPEDITION.

IN continuation of my last notice, I may say that the expedition stayed at Rejkiavik from July 26 to August 3. While Captain Wille made magnetical observations on shore, the majority of the members of the expedition made a tour to Thing Valla, where they had the pleasure of falling in with an Englishman coming from the north and bound for the Geysers. We had a very happy evening together. The remarkable geological structure of the country attracted much interest. The excursion party returned July 30. Stormy weather prevailed during the whole stay at Rejkiavik, so that the coaling was much delayed, and no magnetical observations could be made on shore. A small leak in the boiler took up most of the last day to set it right, and at last we got away on the evening of the 3rd. The season was now so far gone that we were obliged to give up the idea of exploring the sea between Iceland and Greenland, and we shaped our course south of Iceland again, and then towards N.E., running out a line of soundings, which showed the transition from the warmer Atlantic water at the bottom to the ice-cold Arctic water east of Iceland. During a dredging on the bank between Iceland and Faroe, on a hard, probably volcanic, bottom, the line got fast on a rock, and it became necessary to break it; we thus lost a dredge and some hundred fathoms of dredging-line. From a point east of Iceland, the course was laid for Namsos, and several deep-sea stations were well explored on this line. The depth at first increased from 1,000 fathoms to 1,500, and at last to 1,800, the last being midway between Norway and Iceland, in lat. $64^{\circ} 65'$. The more easterly soundings gave a less depth, the last of them being only 650 fathoms. The temperature at the bottom was always under 32° ; at 1,800 fathoms it was 29° , corrected for the error of the thermometer and for that caused by pressure. The layer with 32° was found in about 200 fathoms east of Iceland, and in 300 or 400 fathoms further east. It seems that the Faroe bank prevents the warm Atlantic water from filling up the upper layers of the northern seas to such a depth on the N.E. side of these islands as it does in the interval between this region and the cold sea east of Iceland. The nearer Norway, the warmer is the upper layer of the sea, not only on the surface, but at the depths of 100 and 200 fathoms.

The fauna of the Arctic deep sea seems to be very constant, while it is not very rich. The same specimens have been found further south in ice-cold water, but none of the large forms found in ice-cold water near the coasts were met with by us. The bottom consists of mud, with innumerable specks of small, round calcareous shells.

During the last cruise the weather was constantly bad ; nevertheless, it has been possible to work the deep-sea apparatus even in gales, and with a sea in which the ship went bowsprit under. This result has been attained after successive experiments. The last working day, the dredge and trawl were sent out together, the latter *behind* the former. The weather was stormy, the sea very high, but the experiment was made, and the dredge came well on board. After this result, we can now see no objection to working all the deep-sea apparatus in any kind of summer weather when the depth does not exceed 600 or 700 fathoms. Unhappily, in bad weather, the zoologists cannot study the specimens found in a living state, the motion of the ship killing the animals very soon. The expedition arrived at Namsos, August 14, the scientific staff and the crew being much exhausted by the perpetual bad weather. At Namsos we stayed till the 20th for taking some rest. Meanwhile, magnetical observations were made on shore. On board, the bad weather entirely prohibited our making any.

After leaving Namsos, series of soundings every four miles (nautical) were taken from the Folden-fjord and due west. First we found a hollow 200 fathoms deep, with a constant temperature of 7° C.; then a slightly inclined ridge, whose highest point shoaled up to 56 fathoms; then came an incline down to 120 to 150 fathoms, and after that a flat bottom at the last-named depth. Over this flat the temperature was constantly 7° C. At last, about eleven o'clock on Monday the 21st, the depth increased, the temperature decreased, and we found ice-cold water in somewhat more than 800 fathoms depth. This was 100 nautical miles off the nearest coast, and not very far from our last deep-sea station, where the depth was 580 fathoms, temperature— $1^{\circ}.3$. Such an extent of the Norwegian banks at this place was not expected, but is very interesting. It now seems probable that the boundary line of the ice-cold water runs from a point 100 miles off the coast at Namsos up to Spitzbergen, outside the Lofoden Islands, and this breadth of the bank explains the mild winter climate which Northern Norway enjoys. As a series of soundings and temperatures showed the next day, in a line direct from west to east in the latitude of the mouth of the Trondhjem-fjord, the boundary of the bank and of the ice-cold water goes here and off Romsdal much nearer to the coast. The water was at 0° C. in 345 fathoms, and at the bottom — $1^{\circ}.1$ C. in 480 fathoms depth. On the bank, inside, there was a temperature of $7^{\circ}.3$, on the bottom, at 170 fathoms depth. On the morning of the 23rd, the *Voringen* was outside the Coast of Romsdal, and in foggy weather got very near the dangerous coast. Happily, the fog lifted and a pilot came on board, who took the ship into Molde. The next day the expedition was sounding, trawling, with no result,

and taking serial temperatures in the Romsdal-fjord. The result was the same temperature in the depth of the fjord as in the other deep fjords on the West Coast of Norway, viz., 6°.2. In the evening the expedition arrived at Aalesund, where the ship, in a very strong gale, was nearly driven ashore in the harbour. Happily, the wind gave way, and the chains held, so that the voyage could be continued the next morning. On Saturday, the 26th August, the expedition returned to Bergen, where the ship will be paid off. The members of the expedition are all very well, and look with much interest to the time when they can commence to discuss their observations, which, in spite of the bad weather generally experienced this summer during the cruise, are numerous and interesting.

RAPER'S NAVIGATION.—V.

REDUCTION TO THE MERIDIAN.

Table 47. This Table shows the Limits of the Method of Reduction to the Meridian for common practice at sea, or how long before or after noon the Sun's Altitude may be observed, so that the Reduction shall not be in error more than 2' when the time is 1^m in error.

If r and r_1 be the Reductions corresponding to the Times P and P_1 , c the quantity whose Log is given in Table 70, we have by 700, p. 814 *Nautical Magazine*

$$\sin r = c. \sin^2 \frac{1}{2} P, \sin r_1 = c. \sin^2 \frac{1}{2} P_1$$

$$\sin r_1 - \sin r = c (\sin^2 \frac{1}{2} P_1 - \sin^2 \frac{1}{2} P)$$

$$2 \cos \frac{1}{2} (r_1 + r). \sin \frac{1}{2} (r_1 - r) = c (\sin \frac{1}{2} P_1 + \sin \frac{1}{2} P) (\sin \frac{1}{2} P_1 - \sin \frac{1}{2} P)$$

$$= c. 2 \sin \frac{1}{2} (P_1 + P). \cos \frac{1}{2} (P_1 - P)$$

$$2 \cos \frac{1}{2} (P_1 + P). \sin \frac{1}{2} (P_1 - P)$$

$$\text{But } \cos \frac{1}{2} (r_1 + r) = 1 \text{ nly, } 2 \sin \frac{1}{2} (r_1 - r) = \sin (r_1 - r), 2 \sin \frac{1}{2} (P_1 + P) = \sin (P_1 + P) = \sin P \text{ nly, } \cos \frac{1}{2} (P_1 - P) = 1 \text{ nly, } 2 \sin \frac{1}{2} (P_1 - P) = \sin (P_1 - P),$$

$$\text{Let } r_1 - r = 2' \text{ and } P_1 - P = 1^m = 15'$$

$$\text{Therefore } \sin 2' = c. \sin P. \frac{1}{2} \sin 15'$$

$$\sin P = \frac{2 \sin 2'}{c \sin 15'} = \frac{4}{15 c}$$

This is the same expression as that found by making r the same number of minutes of Arc that P is of Time, for

$$\sin r' = c. \sin^2 \frac{1}{2} P^m$$

$$\sin \frac{1}{15} r^m = c. \sin^2 \frac{1}{2} P^m$$

$$\frac{1}{15} \sin P^m = c. \sin^2 \frac{1}{2} P^m \quad (\text{because } r=P)$$

$$\frac{2}{15} \sin \frac{1}{2} P. \cos \frac{1}{2} P = c. \sin^2 \frac{1}{2} P$$

$$\frac{2}{15} = c. \sin \frac{1}{2} P = \frac{1}{2} c. \sin P \quad (\cos \frac{1}{2} P \text{ being } 1 \text{ nly})$$

$$\sin P = \frac{4}{15 c}$$

Hence the common rule.—The number of minutes in the Reduction should not exceed the number of minutes of Time from noon.

Table 47 is computed from the expression $\sin P = \frac{4}{15 c}$

Table 48. When the number of minutes of Arc in the Reduction, exceeds the number of minutes of Time from the Meridian, it is proper to refer to Table 48, to ascertain if it be necessary to employ the *Second Reduction*. The Table contains the value of the Reduction at which the Second Reduction amounts to 1'.

By 701

$$\sin r_2 = \frac{1}{2} \cot z_1. \sin^2 r_1$$

$$\text{Let } r_2 = 1'$$

$$\text{Then } \sin 1' = \frac{1}{2} \cot z_1. \sin^2 r_1$$

$$\sin^2 r_1 = 2 \sin 1'. \tan z_1$$

$$= \sin 2'. \tan z_1$$

$$\sin r_1 = \sqrt{\sin 2'. \tan z_1}$$

Hence the rule for computing the Table.—To the constant 6.7648 ($\sin 2'$), add the Log Cot of the Meridian Altitude ($\tan z_1$); half the sum (preserving the index) is the Log Sin of the Reduction required ($\sin r_1$).

$$\text{If } r_2 = 1''$$

$$\text{Then } \sin r_1 = \sqrt{\frac{\sin 2'. \tan z_1}{60}}$$

$$= \frac{1}{2} \sqrt{\sin 2'. \tan z_1} \quad (\sqrt{60} = 8 \text{ nly})$$

Hence one-eighth of the quantity in the Table is that First Reduction at which the Second Reduction amounts to 1".

Also $\sin r_1 = c. \sin^2 \frac{1}{2} P$, where Log c is the Log in Table 70.

$$\sin^2 \frac{1}{2} P = \frac{\sin r_1}{c}$$

Hence to find the Time from Noon, on the Hour Angle to which this First Reduction corresponds :—from the Log Sin of the Reduction ($\sin r_1$) subtract the Log in Table 70 (Log c), the remainder is the Log Sin Square of the Time or Hour Angle required ($\sin^2 \frac{1}{2} P$).

708.

$$\begin{aligned} \text{From 700, } \sin r_1 &= \cos d. \cos l. \operatorname{cosec} z_1. 2 \sin^2 \frac{1}{2} P \\ r_1. \sin 1'' &= \cos d. \cos l. \operatorname{cosec} z_1. 2 \sin^2 \frac{1}{2} P \\ r_1 &= \cos d. \cos l. \operatorname{cosec} z_1. \frac{2 \sin^2 \frac{1}{2} P}{\sin 1''} \end{aligned}$$

$$\begin{aligned} \text{From 701, } \sin r_2 &= \frac{1}{2} \cot z_1. \sin^2 r_1 \\ r_2. \sin 1'' &= \frac{1}{2} \cot z_1. r_1^2. \sin^2 1'' \\ &= \frac{1}{2} \cot z_1 (\cos d. \cos l. \operatorname{cosec} z_1)^2. \frac{4 \sin^4 \frac{1}{2} P}{\sin^2 1''}. \sin^2 1'' \\ r_2 &= \cot z_1 (\cos d. \cos l. \operatorname{cosec} z_1)^2. \frac{2 \sin^4 \frac{1}{2} P}{\sin 1''} \end{aligned}$$

Hence the rule.—Take from Table 50 the 2nd Reductions $\left(\frac{2 \sin^4 \frac{1}{2} P}{\sin 1''} \right)$ and divide the sum by the whole number of Altitudes. To twice the sum of the three Logs used before $(\cos d. \cos l. \operatorname{cosec} z_1)^2$ add the Log of the mean 2nd Reduction and the Log Tan of the Meridian Altitude $(\cot z_1)$; the sum (rejecting tens) is the Log of the 2nd Reduction required (r_2) .

Note.—Raper has omitted Log Tan Mer. Alt.

729. SHORT DOUBLE ALTITUDE.

The formula for finding the Time from Noon of the Greater Altitude is the same as in 622, p. 688 *Nautical Magazine*. That for the Reduction as in 700, p. 814 *Nautical Magazine*.

781. As in 622

$$\begin{aligned} \cos P_1 &= \frac{\cos z_1 - \sin l. \sin d}{\cos l. \cos d}, & \cos P_2 &= \frac{\cos z_2 - \sin l. \sin d}{\cos l. \cos d} \\ \cos P_1 - \cos P_2 &= \frac{\cos z_1 - \cos z_2}{\cos l. \cos d} \\ 2 \sin \frac{1}{2} (P_1 + P_2). \sin \frac{1}{2} (P_1 - P_2) &= \frac{2 \sin \frac{1}{2} (z_1 + z_2). \sin \frac{1}{2} (z_1 - z_2)}{\cos l. \cos d} \\ \sin \frac{1}{2} (P_1 - P_2) &= \frac{\operatorname{cosec} \frac{1}{2} (P_1 + P_2). \sin \frac{1}{2} (z_1 + z_2). \sin \frac{1}{2} (z_1 - z_2)}{\cos l. \cos d} \\ &= \frac{\operatorname{cosec} \frac{1}{2} (P_1 + P_2). \sin \frac{1}{2} (z_1 - z_2)}{\operatorname{cosec} \frac{1}{2} (z_1 + z_2). \cos l. \cos d} \\ &= \frac{\operatorname{cosec} \frac{1}{2} (P_1 + P_2). \sin (z_1 - z_2)}{2 \operatorname{cosec} \frac{1}{2} (z_1 + z_2). \cos l. \cos d} \end{aligned}$$

Hence the rule.—To the Arithmetical Complement of the Log in Table 70 $\left\{ \frac{1}{2 \operatorname{cosec} \frac{1}{2} (z_1 + z_2). \cos l. \cos d} \right\}$ add the Log Sin of the difference of the Altitudes $\{\sin (z_1 - z_2)\}$ and the Log Cosec of half the Interval $\{\operatorname{cosec} \frac{1}{2} (P_1 + P_2)\}$; the sum is the Log Sin of half the difference of the Times from Noon $\{\sin \frac{1}{2} (P_1 - P_2)\}$ corresponding to the two Altitudes.

The Reduction formula is the same as in 700.

740. Candidates for Board of Trade Certificates of Competency as First Mate and Ordinary Master have to solve the problem of the Reduction to the Meridian, but as it is set having no connection with any other problem, the question, how can we apply this problem for use at sea? is very frequently asked by them. The answer is given by Raper under the heading *Double Altitude, one Altitude being near the Meridian*.

752. DOUBLE ALTITUDE, NEITHER ALTITUDE BEING NEAR THE MERIDIAN.

Using the rule in 615 foot-note, and putting e for the Error in the Interval, e_1 and e_2 for the Errors of Hour Angle, c for the Error of Latitude, Z and Z_1 for the Azimuths, we have

$$\sin e_1 = \sin c \cdot \cot Z \cdot \sec l$$

$$\text{or } 15 e_1 = c \cdot \cot Z \cdot \sec l \quad (\text{expressing } e_1 \text{ in Arc})$$

$$\text{also } 15 e_2 = c \cdot \cot Z_1 \cdot \sec l$$

$$15 (e_1 - e_2) = c \cdot \sec l (\cot Z - \cot Z_1)$$

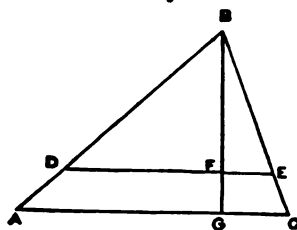
$$15 e = c \cdot \sec l \left(\frac{\cos Z}{\sin Z} - \frac{\cos Z_1}{\sin Z_1} \right)$$

$$= c \cdot \sec l \cdot \frac{\cos Z \cdot \sin Z_1 - \cos Z_1 \cdot \sin Z}{\sin Z \cdot \sin Z_1}$$

$$= c \cdot \sec l \cdot \frac{\sin (Z_1 - Z)}{\sin Z \cdot \sin Z_1}$$

$$c = \frac{e}{\sec l \cdot \frac{\sin (Z_1 + Z)}{15 \sin Z \cdot \sin Z_1}} \quad \begin{array}{l} (- \text{ or } + \text{ according} \\ \text{as the observations} \\ \text{are on the same or} \\ \text{opposite sides of} \\ \text{the Meridian).} \end{array}$$

The same may be obtained by the method on p. 685 *Nautical Magazine*.



In the triangle B A C,

$$\frac{BA}{AC} = \frac{\sin C}{\sin B}, \quad BA = \frac{AC \cdot \sin C}{\sin B}$$

In the triangle B G A,

$$BG = BA \cdot \sin A = AC \cdot \frac{\sin A \cdot \sin C}{\sin B}$$

$$\text{Also } BF = DE \cdot \frac{\sin A \cdot \sin C}{\sin B} \quad (\text{Because } DE \text{ is parallel to } AC)$$

$$\text{Therefore } FG = BG - BF = (AC - DE) \cdot \frac{\sin A \cdot \sin C}{\sin B}$$

$$c. \text{ Sec } l = 15 e \cdot \frac{\sin Z \cdot \sin Z_1}{\sin (Z_1 + Z)} \quad (\text{Using the previous notation})$$

$$c = \frac{e}{\text{Sec } l \cdot \frac{\sin (Z_1 + Z)}{15 \sin Z \cdot \sin Z_1}}$$

$$\text{Prop Log } c = \text{Prop Log } e + \text{Log} \left\{ \text{Sec } l \cdot \frac{\sin (Z_1 + Z)}{15 \sin Z_1 \cdot \sin Z} \right\}$$

$$\text{Hence the rule.}—\text{To the Log from Table 71 } \left\{ \frac{\sin (Z_1 + Z)}{15 \sin Z_1 \cdot \sin Z} \right\} \text{ add}$$

the Log Sec of the Latitude by account (Sec l) and the Prop Log of the Error of the Interval (Prop Log e); the sum (rejecting tens) is the Prop Log of the Correction of the Latitude by account (Prop Log c).

The Error of the Hour Angle depends on the Cot of the Azimuth and the Cot increases as the angle diminishes, therefore the Error of the Hour Angle is greatest when the Azimuth is least. Also when the Azimuth is of opposite name to the Latitude the Hour Angle diminishes with an increase of Latitude, and increases with a decrease of Latitude (615), therefore when the Observations are on the same side of the Meridian, with *too great* a Latitude the less Hour Angle will be diminished more than the greater Hour Angle and consequently the Computed will be *greater* than the True Interval; with *too small* a Latitude the less Hour Angle will be increased more than the greater Hour Angle, and consequently the Computed will be *less* than the True Interval. When the Observations are on opposite sides of the Meridian, the Interval is the sum of the Hour Angles, therefore with *too great* a Latitude, the Computed will be *less* than the True Interval, and with *too small* a Latitude it will be *greater*.

Hence the rule in the simple case.—When the Observations are on the same side of the Meridian, *subtract* the Correction from the Latitude by account when the Computed is *greater* than the True Interval (because Latitude by account is *too great*), and *add* when it is *less* (because Latitude by account is *too small*). When the Observations are on opposite sides of the Meridian, *subtract* the Correction from the Latitude by account when the Computed is *less* than the True Interval (because Latitude by account is *too great*), and *add* when it is *greater* (because Latitude by account is *too small*).

When the Azimuth is of the same name as the Latitude, the Hour Angle increases with an increase of Latitude, and diminishes with a decrease of Latitude (615). When the Latitude and Declination are of the same name, the greater Hour Angle may be with either the greater

or less Azimuth. Suppose both Azimuths to be of the same name as the Latitude, the Observations on the same side of the Meridian, and the greater Hour Angle with the greater Azimuth. With *too great* a Latitude the less Hour Angle will be increased more than the greater Hour Angle, consequently the Computed will be *less* than the True Interval; and with *too small* a Latitude the less Hour Angle will be diminished more than the greater Hour Angle, consequently the Computed will be *greater* than the True Interval. If the greater Hour Angle is with the less Azimuth these are reversed.

Hence the rule when both Observations are on the same side of the Meridian and Prime Vertical, and both marked V.—*Subtract* the Correction from the Latitude by account when the Computed is *less* than the True Interval, and the greater Hour Angle is with the greater Azimuth, and also when the Computed is *greater* than the True Interval, and the greater Hour Angle is with the less Azimuth (because Latitude by account is *too great*). *Add* the Correction when in the above rules the greater and less Azimuths are interchanged.

Now let the Azimuths be of opposite names, the Observations on the same side of the Meridian, and the Hour Angle with the greater Azimuth which has the same name as the Latitude. With *too great* a Latitude the Hour Angle with the less Azimuth will be diminished and the Hour Angle with the greater Azimuth will be increased, consequently the Computed will be *greater* than the True Interval. With *too small* a Latitude the Hour Angle with the less Azimuth will be increased more than the Hour Angle with the greater Azimuth is diminished, consequently the Computed will be *less* than the True Interval. When the Observations are on different sides of the Meridian, with *too great* a Latitude the Computed will be *less* than the True Interval, and with *too small* a Latitude it will be *greater*. These are reversed if the Hour Angle is with the Less Azimuth which is of the same name as the Latitude.

Hence the rule when the Observations are on different sides of the Prime Vertical and one of them marked V, and they are on the same side of the Meridian.—*Subtract* the Correction from the Latitude by account when the Computed is *greater* than the True Interval and the Hour Angle marked V is with the greater Azimuth, and also when the Computed is *less* than the True Interval and the Hour Angle marked V is with the less Azimuth. *Add* the Correction when in the above the greater and less Azimuths are interchanged. If the Observations are on opposite sides of the Meridian for subtract read add, and for add read subtract, in the above rules.

In the foregoing explanation the Azimuth is always less than 90° .

W. H. BOLT.

Nautical Academy, 10, King Street, Tower Hill.

SPONTANEOUS COMBUSTION OF COAL IN SHIPS.

THE Royal Commissioners appointed to inquire into the subject of spontaneous combustion in ships have, after hearing a great deal of evidence, and visiting the chief coal shipping ports, made a valuable report. The following is a summary of the conclusions arrived at by the Commissioners:—

- “ 1. That certain descriptions of coal are intrinsically dangerous for shipment on long voyages.
2. That the breakage of coal in its transport from the pit to the ship's hold, the shipment of pyritic coal in a wet condition, and, *especially ventilation through the body of coal cargoes*, conduce to spontaneous combustion, even though the coal may not be unfit for conveyance on long voyages.
3. That spontaneous combustion in coal cargoes would be less frequent, if regard were had by shipowners and underwriters to these facts.
4. That when coal is being carried on long voyages the temperature in the various portions of the cargo should be tested periodically by thermometer, and registered in the log.
5. That, with a view to guard against explosion, free and continuous egress to the open air, independently of the hatchways, should be provided for the explosive gases, by means of a system of *surface ventilation*, which would be effective in all circumstances of weather.
6. That in order to make known the descriptions of coal liable to combustion, the Inspectors of Mines should be instructed to hold inquiry into all cases of spontaneous combustion occurring in cargoes of coal taken from their respective districts; exporters being required always to record on their specifications the denomination of the coals forming the cargo.
7. That no additional legislation with reference to the conveyance of coal by sea is required, unless for the purpose of giving effect to our proposals with regard to the inquiries by Inspectors of Mines, and to the fuller specification of coal entered outward at Her Majesty's Customs.”

The most important point in the Report appears to be the question of ventilation. In a valuable paper appended to the Report, signed by Dr. Percy and Professor Abel, on the subject of the chemical conditions which tend to originate and develop spontaneous combustion, it is shown that the chief agent in developing heat in coal cargoes is air, and therefore that the system of passing currents of air through the body of the coal is)

P.

injurious in the extreme. This is directly opposed to the view which has prevailed among some coal shippers for many years, it having been considered a measure of safety to provide a system of through ventilation for coal cargoes. The surface ventilation referred to in the 5th paragraph of the summary is intended to guard against explosion, an effect produced by causes differing from those which bring about spontaneous combustion.

The breakage of coal in loading has received very careful consideration from the Commissioners, and in their Report they deal with the question at length, chiefly in connection with the various methods of loading adopted at different ports.

We are glad to find that no further legislation on this subject is recommended. With the aid of such a valuable Report as this is, coal shippers and others can make themselves thoroughly acquainted with the risks attaching to coal cargoes, as well as with the precautions which should be adopted. It rests, therefore, with those concerned to look after their own interests, and we have no doubt that a knowledge of the dangers will operate more effectually to reduce the number of casualties from spontaneous combustion than any quantity of legislation.

STORM FLAMES AND LIFEBOUY LIGHTS.—We are asked whether, under Section 21 of the Merchant Shipping Act, 1876, these lights, inextinguishable in water, are to be placed on board of steamers carrying less than twelve passengers. Our answer is, "Yes." There can be no doubt on the point. Steamers carrying one person, besides the master and crew, and the owner his family, and servants, are passenger steamers within the meaning of the Act of 1854; and although they are exempted from survey by the Act of 1876, they are in no way exempted from any of the provisions of the Act of 1854, part 4, so far as their equipments are concerned, or so far as any penalty is provided for improper safety-valves, improper pressure on boilers, and deficient boats, lifeboats, lifebuoys, and signals. As regards boats, it is clear that steamers not carrying more than twelve passengers are placed in the same category as all other ships—that is to say, the collector of customs can refuse clearance until, and the owners will be liable to crews and passengers unless the boats named in the schedule to the Act of 1854 are carried with the necessary equipments and means of lowering into the water in cases of emergency. It is only steamers coming under the survey provided by part 4, of the Act of 1854, that can be exempted by the Board of Trade in certain cases from carrying the full boat complement named in the schedule to that Act.

DECK CARGOES.

WE have received a copy of the following curious memo.:—
 “Newcastle-on-Tyne, September 5th, 1876. From recent events it is feared grave misconstruction is being put upon that portion of the Merchant Shipping Act, 89 & 40, cap. 80, 1876, sec. 24 marked (C), referring to deck-loading between the last day of October and 16th day of April, viz., ‘or other light wood goods of any description.’ It is presumed shipowners, importers, &c., concede that this Act is fair and equitable, and we are only seeking from the Board of Trade an elucidation of the words ‘or other light wood goods.’ It is believed the authorities and all concerned will be saved much trouble, misunderstanding, and loss, if a list be issued distinctly defining every article allowed to be carried as deck cargo. The spirit of this part of the section of the Act is evidently to include all goods which can be as easily thrown overboard as deals; hence the Legislature never intended to exclude staves, lathwood, pit props, sleeper blocks, sleepers, &c., as these all onbe less than the maximum deals; they are also much shorter, and therefore infinitely easier to throw overboard than the permissible and enumerated deals and battens.

	Feet.
A deal 26 by 12 by 4 (copied from a <i>bona fide</i> specification of a cargo now discharging at West Hartlepool)	cubes 8½
A sleeper block 8½ by 10 by 10	„ 6
A sleeper 8½ by 10 by 5	„ 3
Pit props range from 6 to 20 feet; the maximum, therefore, at 20 feet by 4½ quarter girt is	„ 3½
Staves 6 feet by 7 by 3½	„ 0½
Lathwood in small billets.	

As the Act will come in force very shortly, and vessels already require instructions, it is desirable that united action should be adopted to bring this important matter before the Board of Trade at once. It may be observed that, although these alterations particularly affect shipowners and importers, they are also of national concern, especially to those interested in dock and light dues, as in future deck loads are to be measured and included in the registered tonnage, and therefore all are asked to aid in furthering our common object. It is proposed to ask the Board of Trade to refer to the Honourable the Commissioners of Her Majesty's Customs for a list of goods with their cubic capacity, which can be as easily thrown overboard as deals and battens. Please address any results of conference with kindred Chambers, Members of Parliament,

or others, to B. Plummer, Esq., jun., Secretary to the Chamber of Commerce and Associated Shipowners' Society, Newcastle-on-Tyne."

We much doubt whether the Board of Trade or Board of Customs will be "led" by such a memo. as the above. It is ingenious and plausible, but as it commences with the quotation of half a sentence it is wholly misleading. The Act prohibits during the winter the carriage on deck (or in any covered space on deck not included in the ship's tonnage) of any timber whatever, whether square, round, or waney; it then prohibits also totally the carriage as deck cargo of heavy wood goods, the following woods by name, pitch pine, mahogany, oak, and teak, and whether they may be in large or small pieces. A stave for a cask is as much prohibited as a log for a spar, if it consists of pitch pine, mahogany, oak, or teak. Not a bit of any of those four named heavy woods may be carried as deck cargo in winter, and not only are these four woods totally prohibited, but goods of any other heavy woods are equally totally prohibited. In short, timber as well of light wood as of heavy, and all heavy woods are absolutely prohibited. What may be carried in winter are deals or battens, or other "light wood" goods, to a height not exceeding 3 feet. The distinction drawn by the Act is between goods of *heavy woods* and goods of *light woods*—not between large and small pieces of heavy wood. The framer of this memorandum is like the blind leading the blind, when he says that the Legislature never intended to exclude "staves" from deck cargo. What the Act provides, which is probably what the Legislature intended to do, is that if staves are of deal, or of other light wood—that is to say, if they are light wood goods, they may be carried on deck to a height not exceeding 3 feet; but if they are of "oak" they cannot be carried at all, for they come under express and double prohibition—first, because it is illegal to carry "any oak" on deck in winter, and, secondly, because it is not legal to carry any goods of heavy wood on deck. Oak staves are heavy wood goods, as distinguished from deal staves, which are light wood goods. If the views of the writer of this memorandum are correct, a ship's deck might be encumbered to 3 feet high with pitch pine, mahogany, oak, teak, lignum vite, elm, &c., so long as each piece could be thrown over as easily as a deal or batten. And while pitch pine logs would be regarded as heavy wood goods, pitch pine battens would be deemed to be light wood goods—that is to say, it is the smallness of each piece, and not the weight of the whole deck cargo, that would determine in the mind of the writer thereof, whether the cargo of wood goods carried on his ship's decks are light or heavy.

ON SEA AND LAND.—RECOLLECTIONS OF A SAILOR.

THE CRUISE OF THE "ARETHUSA," &c., &c.

CHAPTER IV.

I SAIL FOR GREENOCK.

THERE are few parts of the coasts of Great Britain where more beautiful natural scenery or a succession of finer roadsteads are to be found than on the Clyde. It would be difficult to say which of the lochs or harbours present the greatest charms or the best anchorage, although some of them possess more advantages in that respect than others.

But, perhaps, Rothesay Bay, where the *Arethusa* anchored for the remainder of the night after she had been on shore, is the prettiest, if not in all respects the most convenient of these various roadsteads.

Woods rising above the woods, on either side studded with handsome villas, many of them mansions and even castles, diversify the scene, while the luxuriant foliage and green fields, extending to the edge of the sea, give a beauty and charm to the scenery seldom to be found in any other portion of the earth.

It has been my lot to visit most of earth's finest and grandest scenes, from the awe-striking cascades of Niagara and the variegated and truly beautiful landscapes with which they are surrounded, and that too when an "Indian summer" brought out the foliage in its richest and finest colours. I have travelled over the prairies of the far West, and the valleys of the great Mississippi river, whose luxuriant soil is destined to afford profitable employment to millions of the human race. I have scrambled on the snow-clad mountains of Switzerland, and surveyed their ice-bound peaks, sparkling, as if clothed with silver tinged with gold, in the rays of the rising sun; and I have sailed down the Rhine amidst its vine-clad hills and ruined castles. I have also seen everything worthy of note in the sweet and placid valley of the Thames from Oxford to Richmond, both famous alike in song and history. I have wandered through Italy, and have had a peep at the Grecian Archipelago, whose ancient glory still sheds a lustre over those now benighted islands. Athens, whose fame has been made even more glorious by the pen of Byron; and Cintra, which has likewise been the subject of his verse, have in their turn been objects of my admiration. Nor have my wanderings been confined to America and Europe, for I have travelled through Persia—had a glimpse of the site of ancient Babylon, a donkey-ride over bits of Mesopotamia, and I have been far away into some of the rich plains of India, and through the spice islands of Ceylon.

But what of all this? my readers may ask. Well, it is to show that my opinion ought to be of some value when I say that I never saw any scenery which pleased me more than that of the Clyde, and I should advise my friends who have never seen it to go there before they think of going to any of the far away places I have named, though the latter can now be reached with much less expense and trouble than when I visited them, which is perhaps another reason why I have puffed up my own extensive wanderings. People think little about such wanderings now; they can now go all over India in three months, and round the world by way of America, Japan, and China, in about the same time; they have merely to ask Messrs. Cook for a ticket, and pay for it, and they may see New York, and the Falls, or Salt Lake City and California, or Jerusalem, or Mesopotamia, during their ordinary holiday, and be fed sumptuously all the way. It was very different in my travelling days.

But I must give my readers the hint that when they visit the Clyde they should take waterproof overcoats with them, and an umbrella would not be amiss. Alas! that one should be obliged to offer such a warning, for, without the rain and drizzling mist, and with an Italian sky, the Clyde would be so much of a paradise on earth that when those who now live on its banks shift their quarters to the garden of Eden they may feel that they have never been out of it.

There are, however, no roses without thorns; no true happiness without a blemish of one sort or another; no mechanical production that is really perfect; nothing in nature, much less in art, that may not be improved upon—in a word, there is nothing truly perfect in this transitory state of things.

As there is, therefore, nothing perfect even in nature, the Clyde, with all its beautiful scenery, is too frequently overcast with a clouded sky. Mists often hang over it, accompanied either with drizzling showers or heavy rains. In fact, I cannot recollect—and I have frequently visited the spot—ever having been on that most beautiful of all Scottish lakes, Loch Lomond, without being drenched, or encountering a dull and clouded sky charged with water ready to be poured at any moment upon the tourist. Indeed, some portions of the Clyde are proverbial for rain, especially Greenock, where it is told of the southern traveller, who, in the midst of that small drizzling mist which is said to wet an Englishman to the skin, asked a boy whom he met in its streets, "Does it always rain here?" "Na, na," replied the youth, "it disna aye rain, for it sometimes snaws."

It was, however, a beautiful clear morning when Captain Roughhead, aroused from his slumbers of two hours' duration in Rothesay Bay, called upon me to bring him a bucket of water, and having refreshed himself by dipping his woolly head into it three or four times, and making an effort to wash his face, he ordered up all hands to get under weigh.

Although the wind was still light it was favourable; and, as our skipper was now as clear in his intellect, after he had cooled in the bucket of water the receptacle of his reasoning faculties—as any ordinary man would have been who had not imbibed one half the strong drink that he had done—his orders were promptly obeyed.

Conchie soon got the anchor on board, and setting all sail, we shaped our course for Greenock, where we arrived, without any incident of importance, on the afternoon of the day we started from Rothesay.

I VISIT THE ANCHOR TAVERN AND OBSERVE ITS INMATES.

Greenock was, if it is not so still, a tidal harbour, and though it had a dock there was not sufficient depth to float the *Arethusa* at low water. Consequently, she there lay embedded in the mud at the inner quay wall abreast of the town. Here we were to receive our cargo, but as we should be from two to three weeks in loading, our skipper engaged lodgings on shore and took me with him.

The house where we engaged lodgings faced the harbour, and was within a stone's throw of where the *Arethusa* lay. It was one of those gable-ended houses much more rare in Scotland than in England, but seldom now to be met with except in its oldest towns. It was built of stone, intersected by large oak beams, and some portions of these, with the window and door frames, were curiously carved. The end facing the sea was a "whisky shop;" or, at least, that was the name by which it was known, although every description of strong drink could be there obtained. It had a stone floor well sanded, and behind the counter there were ranged against the wall three huge oak casks with polished hoops and gilt figures, denoting the gallons of whisky they were supposed to contain—the quantity was something fabulous. Between these there were ranged on shelves numerous bottles of variegated colours, labelled Brandy, Gin, Bitters, and so forth. Crimson curtains adorned the windows, and everything was very clean and cheery looking.

Above the shop, which was under the sole charge of the landlord himself, there was a large room approached from the main entrance to the building—in itself combining a tavern and lodging-house, with its principal window facing the harbour. The rest of the house consisted of a great number of small parlours and bedrooms, &c., and these were under the charge of the landlady.

The proprietors were a thrifty, well-to-do couple, and the house was nearly always full, its guests consisting chiefly of masters of coasting vessels and commercial travellers, with a sprinkling of farmers.

Although the large room above the whisky shop was known as the commercial-room, and was appropriated as such during the course of the day to the use of commercial travellers and their customers, it was open

in the evening to many of the shopkeepers and small shipowners who made it their place of meeting to have a pipe and a gossip over their tumbler or two of whisky toddy.

The room was a handsome one of its kind: hunting and stage-coach scenes adorned one side of its wall and ships the other. Down the centre ran an old oak table, at which fourteen or fifteen persons could conveniently find seats. Chairs of similar material surrounded the room, and on each side of the fire-place stood two huge easy chairs covered in leather and mounted with large brass nails.

It might not be easy to define the political opinions of the evening frequenters of the commercial-room of the "Anchor," for such was the name of the tavern, except that the great majority of them appeared to entertain the opinion that the Treaties of Reciprocity of Huskisson, which had not then been long in operation, were in the fair way of ruining British shipping. A few of them thought that the repeal of the Corn Laws, then a good deal talked about, might not do a great deal of harm; but they were unanimously of opinion that the repeal of the Navigation Laws, which then loomed in the distance, though only talked about by "Radicals and Revolutionists," would sweep the British flag from every sea.

But a draper and 'grocer, who were regular in their attendance at these evening gatherings, and had no interest as owners of vessels, though they did not clearly understand the nature of the Navigation Laws, frequently, I recollect, and amidst great confusion, sturdily maintained that the repeal of the Corn Laws could not, after all, be a bad measure for shipowners whatever it might be for landowners and farmers.

Now and again a commercial traveller would support the somewhat advanced views of the draper and grocer; and I have the most vivid recollection of one of these gentlemen making his appearance during a discussion, whose remarks made an impression on my young mind which I can never forget.

I MEET A NOTABLE STRANGER AT THE ANCHOR TAVERN.

He had arrived during the forenoon of the evening to which I refer from Manchester, *via* Liverpool, by one of the early steamers which then traded between that port and Greenock. He was on his way to Glasgow, and having finished his business with the draper and other customers of his line in the town, had taken up his quarters at the Anchor for the night.

The hours of meeting in the commercial-room were usually from eight to eleven, p.m., sometimes extending to midnight; the room being generally free after eight o'clock, so that the table could be cleared for

the tumblers and pipes of the evening guests. But that evening, when the usual customers had gathered, the upper end of the table was occupied by a tray from which the traveller was having his tea, with a slice of cold beef, a loaf of bread, and a couple of boiled eggs. Judging by the hearty manner in which he partook of the food that had been placed before him, the meal evidently sufficed for dinner and supper as well as tea. Nor was he in any way disturbed by the gathering company, to all of whom he was evidently an entire stranger except the draper.

He was a young man—very young to fill the position of a commercial traveller; but, though a boy in years, his countenance displayed marks of thought and great intelligence. He was an *Englishman*, the son, as I afterwards ascertained, of a Sussex yeoman. His forehead was lofty and very broad; he had bright and sparkling eyes; prominent, but well-formed nose, and a somewhat small mouth, with thin lips. He had one of the most insinuating, pleasing smiles I ever saw; and his manners, though quiet and retiring, were those of a man who had evidently mingled in higher society than the class to which he belonged. Altogether, he was a young man whom no one could pass unnoticed in any assembly.

When he spoke—which he did for the first time in reply to Captain Roughhead, who expressed a hope that the smoke from his pipe did not annoy him—the few words in reply, to the effect that the fumes of the tobacco did not injure his appetite, flowed from his mouth in mellowed whispers, and his placid smile, showed that such matters were not likely to disturb his usual equanimity, much less ruffle his temper.

“You see,” he continued, as he rose to help himself to another slice of cold beef from a joint on the side table, “the smoke does not prevent me doing full justice to our landlord’s excellent fare; though I do not myself indulge in either a pipe or cigar, I have been accustomed to associate with those who do.”

“Ah,” said an old fellow, who sat on one of the large easy chairs, “I wish I had such an appetite as you, young man.”

The young man smiled as he looked at him, but said nothing, although I dare say he perceived in the tumbler of rum-and-water he held in his hand, and into which his red nose was pretty far advanced when he spoke, the reason why the querist’s appetite was not so good as his own.

“Well, if you don’t smoke, I suppose you’ll join us in a glass of punch?”

But the stranger again smiled, and shook his head, making no further reply.

“Bless my heart!” continued the man with the red nose, addressing the young man, “you’re a prodigy; going from town to town, ’midst sunshine and storm, rain and snaw, and no tasting a drap o’ onything stronger than tea, nor haeing a puff o’ tobacco after yee’ sair wark was

ower for the day. Wunders wull ne'er cease," he continued, and turning to an old commercial traveller who sat by his side, he asked, "Did you ever, Mr. Shortyard, see or hear afore of one of your line o' business who never smoked, nor had his glass of grog?"

Mr. Shortyard might have heard of such another person "on the road," but he did not say so; and his own looks betokened those of one who enjoyed both his pipe and liquor to an extent somewhat beyond moderation, for he was then mixing his third tumbler of toddy, though the clock on the mantelpiece had not struck nine. He, however, remarked in a whisper which the stranger evidently did not hear, that the proprietors of the Anchor would not make a fortune out of guests with good appetites, who neither smoke, nor drank anything stronger than tea or coffee.

"Don't be put out," said our skipper, addressing the stranger with a patronising air. "Drinkin's a bad habit, and smoking worsen, and though I do a little o' baith mysel', I approve o' temperance; it looks weel in young men." And in this strain he would no doubt have gone on at greater length had he not caught the eye of the draper, who did not appear to relish Captain Roughhead's essay on the advantages of temperance.

The truth was that, as the young traveller was on his first round at Greenock, the draper had expected an extra tumbler or two that night at the stranger's cost, the practice being for commercial travellers to treat their customers. Indeed, most bargains were then struck over a glass of grog at the nearest tavern.

AND LISTEN TO HIS DISCOURSE.

The table having now been cleared of everything except tumblers, glass measures, long clay pipes, and paper screws of tobacco, Captain Roughhead, seeing that he had offended the draper by his curtailed essay on temperance, with whom, by the way, he had been in negotiation for a shipment of his previous year's stock of goods for St. John's, ordered at his own expense a bowl of hot whisky-and-water for the company round.

This extraordinary stretch of liberality on the part of our skipper—the company did not know that he had an eye to business—elicited a cheer, or hear, hear, from everybody in the room, and completely restored the equilibrium of the draper's evidently-disturbed temper.

As the landlord's "biggest bowl" was a basin of considerable depth and diameter, the evening frequenters of the commercial-room of the Anchor knew that the order embraced at least two tumblers to each person present, free of cost, and the company was, of course, exuberant in its gratitude. And when the tumblers were filled from the smoking

basin, and the chairman, in a most unconstitutional manner, proposed the health of our skipper in place of that of the King, describing him as a king amongst the skippers, the cheers and rattling of glasses were almost deafening.

The toast of "Ships, Colonies, and Commerce" followed, and that sentiment led to various speeches of the usual stamp, which had been frequently heard and cheered in the same room, all about the "Flag that braved a thousand years the battle and the breeze;" how Britannia ever ruled the waves, and ever should and would rule them; and how that the recent treaties of reciprocity were meant to encourage the Yankees, and the Norwegians and Swedes, with their sailors fed on "fat pork and treacle" on the one side of the Atlantic, and on the other with "beans, black bread, and sour krout," all to the ruin of the little island of Great Britain, which lay between them.

"Was it no' an outrageous Act o' Parliament," exclaimed the chairman, whose health had been coupled with the "Ships, Colonies, and Commerce," "to allow thae foreigners to drive our ships frae that ocean which had aye been oor ain, which Camperdown and Nelson had at sic' an awfu' sacrifice o' human bluid, an' British treasure cleared for oor ain use, and which Pitt, rather than gie up, resolved to enshroud himsel' in the Union Jack, and wi' a cannon ball at his feet, bury himsel' in the ocean sooner than gie up any o' oor maritime richts!"

Here there was vociferous cheering, and thumping on the table so that the glasses rung again.

"What justice," continued the chairman, "can there be in gieing thae foreigners, wha hae naething to gie us in return, a' the privileges o' coming to oor ports wi' what cargo they like, and taking awa' what they like, on the same terms as oor ships? Wha's their colonies? Wha's their trade that we can get onything out of them in return? Wha's the equality? Can onybody tell me?" And here the speaker paused, and exultingly waited for an answer.

For a minute there was silence, and no one seemed disposed to reply. The majority had, indeed, nothing to say, except approval: nearly all of them entirely coinciding with the opinions that had been expressed.

At last the young commercial traveller ventured a remark, to the effect that the more ships which frequented our ports the better it would be for the people of this country, and that competition would reduce the freights on those articles which our people required from other countries, by which we should also be gainers.

The company, however, could not see any force in this reasoning, and, for the reasons adduced by the chairman, scouted the idea of our ships competing successfully with those of other nations. But when the young stranger broached the question of the Corn Laws, with which he

seemed to be very familiar, he found more converts to his views than he could have anticipated to find in such an assembly; and when he pictured in glowing terms, warming with the subject, the large quantities of grain which would be brought in our ships from other countries, if the duties on corn were abolished, most of the company seemed disposed to consider that these laws were far from being a blessing, especially to our shipowners.

Following up the inroad he had evidently made, the young Englishman, with a quiet tact and force which enchanted everyone, now appealed to their sense of justice, and asked why the bread of life of the millions should be taxed for the supposed benefit of a comparatively few wealthy landowners, and why the people, were not allowed to buy their daily food in the cheapest markets? Then, directing attention to the distress which at that time prevailed throughout the country, especially in the manufacturing districts, he showed how this arose almost entirely from the high price of food on the one hand, which enhanced the rate of wages, so that our manufacturers could not successfully compete with other nations; and on the other from the difficulties placed in the way of importing those raw materials necessary to afford them employment.

Whether it was his style of reasoning and clear forcible language, or the whisky punch, or both combined, which brought about the change, I cannot pretend to say; but I recollect that the enthusiasm was almost as great, and the knocking of glasses nearly as furious, as when the chairman had finished his oration. In the midst of the cheering the stranger slipped away. I suppose to his bedroom; and as he left, our skipper whispered to me, "Tommy, he's a clever chiel, that. He'll mak' the Lairds scratch their heeds some day. But it is time for ye tae gang tae bed."

Obeying orders, I also slipped away, and I am, consequently, unable to record at what hour the company of the commercial-room broke up that evening, or in what state of feeling and sobriety they were when they parted; but I can say this, that the young Englishman referred to did, in after years, open the eyes of the people, if he did not "mak' the Lairds scratch their heeds."

CHAPTER V.

I PAY A VISIT TO GLASGOW BY COACH.

Although Henry Bell's *Comet* proved an unprofitable speculation in her first attempt to develope steam navigation between Glasgow, Dumbarton, and Greenock, and some years had elapsed before any other adventurer entered upon so "hazardous" an undertaking, steamers had become at the time of my first visit to the Clyde an established and

successful means of communication between even much more distant ports than those I have named, and were then nearly the only means of communication between Greenock and Glasgow ; they had supplanted all the passenger sailing craft, and were fast superseding the few stage-coaches which still tenaciously pursued their ancient calling ; even these would then have disappeared from the well-macadamised road connecting these two places had they not been supported by those of the seafaring population who had no faith in steamers.

Captain Roughhead was one of those unbelievers ; and I recollect on the one occasion when he required to visit Glasgow, and he took me with him, he preferred the stage-coach to the steamer. I enjoyed the drive ; and when we reached our destination I was greatly struck with the size of the city, which was one of the largest places I had then seen.

I SOJOURN AT THE WHEAT SHEAF.

I forget the name of the coach ; but I recollect that it stopped at a pretty hotel, or hostelry, called the Wheat Sheaf, on the south banks of the River Clyde, above the Broomielaw, and close to the "old," or Stockwell Street, bridge. Here we took up our quarters, having arrived after somewhat more than a three hours' ride, between nine and ten in the morning.

The landlady was a buxom widow ; and as she and our skipper had been evidently old friends, we had an extra substantial breakfast.

I recollect it well, for I was very hungry, and the fare was far superior to anything I had ever before been freely allowed to partake of—and in such abundance ! It consisted of ham and fried eggs, cold chicken and tongue, and a portion of one of the largest veal pies I had ever feasted my eyes upon. Like the fat boy in "Pickwick," I could not keep my eyes off that pie, and in case somebody might come into the room and walk away with it, I commenced my breakfast upon its contents, though I did not finish it with them, leaving our skipper to satisfy his equally keen appetite on the other dainties.

Although I have never been a gourmand, like the now celebrated fat boy, and for many years afterwards was satisfied with my humble fare, that breakfast made a lasting impression on my mind, and I now often wonder how I could have found room in my stomach for what I stowed away that morning, and sometimes wish I had the same appetite as I had then. Considering the quantity I consumed, I should think the landlady could not have desired many such guests or customers in her house ; but I suppose she balanced her accounts on the right side with what our skipper and others drank, as the tap was the best frequented part of her house.

Her chief guests were farmers from the Mearns district, ship captains of the better sort, and a good many commercial travellers, most of whom patronised very freely the whisky from a distillery not far from the Wheat Sheaf, which supplied all that was required in that line at, no doubt, much lower prices than the landlady charged for it to her thirsty customers.

Our skipper having his business to attend to in the city, left me to dispose of myself as I pleased for the day, with instructions for me to be back to the hostelry by seven o'clock, when we should have tea, although he did not intend to return to Greenock until the following morning.

He had his dinner in the city, and as I had laid in no ordinary stock of food at breakfast, a halfpenny scone (coarse roll) purchased at a baker's shop, and a pennyworth of spelding (dried haddock) from one of the hawkers who supplied that article from flat wheelbarrows in the street, supplied all my requirements in the interval.

GLASGOW AS I SAW IT A LONG TIME AGO.

Although the Trongate was a much shorter and less imposing street than it is now, I had never previously seen any thoroughfare at all approaching its dimensions. I was amazed with the size of its houses, and the splendour of its shops; but the "Tontine," with its curiously carved faces over every arch, was alike a puzzle and a wonder to me.

Under these arches the merchants of the city had long been accustomed to meet and transact their business, and where, I think, they then still met, for I was not aware of any other Exchange, but what the ugly faces over the arches of such a building could have to do with its vocation, except to represent the contorted countenances of those of its members who had been unfortunate in their speculations, I was altogether at a loss to understand.

However, my meditations about the cause of so many contorted human faces were abruptly cut short by the sight under the arches of the living countenances of the Laird and the skipper (the former having left home to see about the loading and despatch of the *Arethusa*), who were in close conversation with two gentlemen, no doubt bargaining about freight for the schooner.

They did not see me, and I did not give them a chance, for I turned short round by the old tower—once a gaol, made famous by Sir Walter Scott in his description of Bailie Nicol Jarvey's interview with Bob Roy, who had been one of its inmates—and strolled away up High Street, with its curious old gable-end houses, to the old college, and thence to the High Kirk, one of the finest cathedral churches in Scotland; there, and by the banks of the "Molindiner burn," then a limpid stream, I enjoyed myself for an hour or two; thence I wended my way to the

"Wash-houses" in Glasgow Green, where sturdy lasses, with their petticoats tucked-up rather high above their knees, tramped out in large tubs full of soapsuds the blankets, &c., &c., of the citizens; and thence through the Green, past the tall column erected in memory of Nelson, to the high wooden bridge which spanned the Clyde at Hutchinson-town. Crossing it, I found my way by the street running along the south side of the river—which is now very much as it was then—to the Wheat Sheaf, where Captain Roughhead, having finished his business, had preceded me.

I HAVE A SECOND MEETING WITH THE STRANGER.

Tea, and something to it, was all ready for us, but our skipper, having rigidly maintained his temperate habits while with the Laird, had a rather stiff glass of whisky-and-water before we commenced our evening repast. He, however, did justice to it, and after a few pleasantries with his old friend the landlady, we adjourned from the widow's parlour, where we had our repast, to the commercial-room of the Wheat Sheaf.

There we met a number of persons collecting for the evening, of a somewhat similar class to those who frequented the commercial-room of the Anchor; some of them Captain Roughhead had met before. The mode of procedure, and the kind of conversation, was not in many respects different to similar gatherings at the Anchor and numerous other places, only the company was composed of more commercial travellers, among whom I was pleased to meet again the young Englishman with whose manners and conversation I had been so much fascinated.

Glasgow at the time to which I now refer was greatly disturbed. It was one of the earliest places in the kingdom where the principles of Radicalism had shown themselves in open revolt. Some of the dwellings of those persons who had publicly recommended force as the best means of effectually silencing the expression of any extreme political opinions, had been gutted, and their furniture thrown into the Clyde. Other acts of violence had been committed, and some of the leading exponents of Radicalism had been imprisoned, and even transported; but their principles were gradually, though slowly, spreading amongst the mechanics, and from them to a few of the middle classes. A small paper called the *Reformers' Gazette* had been started to advocate the extreme views of the party, and was steadily, but surely, commanding success.

As might have been supposed, these riots were the chief subject of conversation, especially with the commercial travellers; and although the young Englishman could not approve, but, on the contrary, unlike one or two others of his cloth then forming part of the company assembled in the commercial-room at the Wheat Sheaf, he very much disapproved of the violent outbreak of the Radicals, although agreeing entirely with all

the leading features of their political principles ; indeed, he went on to show that brute force never succeeded in convincing anyone, but only aggravated them. At the same time, he showed in even more homely and convincing eloquence than he had displayed at Greenock, that the principles of the Reformers were unanswerable if we were to consider (which we ought to do on all such questions) the good of our country, and that what every intelligent Radical required was simple justice—nothing more. The people, he said, were suffering through our protective laws, and, in many cases, they were starving for want of employment entirely through the operation of these laws, which were maintained solely for the benefit of the influential few, to the loss and ruin of the many, while bread, the staple article of food of the people, was forced up to an exorbitant price to maintain a few aristocratic families, not merely in luxury, which from their position they were, no doubt, entitled to have, but to enable them to accumulate wealth to an extent far beyond what they already possessed. To their wealth he had no objections to offer, nor to their enjoyment of it, and while he altogether ignored the Chartist principles about the sub-division of property and so forth, he held that the law should give every man, however humble, a chance of making money for himself, and of accumulating it if he chose to do so by his industry, economy, and honesty. He held there should be one law for all men, and that laws should not be framed as they were then for the benefit of the rich and to the injury of the poor. He went further, and showed that wise, just, and liberal laws would be quite as beneficial to the landowner, ship-owner, and farmer, as they would be to the mechanic, sailor, and common labourer, and, indeed, that the men who were opposed to the views of the Reformers would very likely be larger gainers by the changes advocated by those persons who were then considered revolutionists, than the working classes.

Such doctrines as these, advocated in the commercial-room of a tavern, were something entirely novel, and were ignored, as a rule, by the bulk of persons who usually there assembled ; but they in time prevailed, and the class to which their advocate on the present occasion belonged, supported by the manufacturers and tradesmen, especially the drapers and grocers, were the chief instruments of bringing about the vast changes which have since been made in our commercial policy. But amongst that class there was in after years no more distinguished advocate than that young commercial traveller, who, leaving business pursuits to the sacrifice of his own pecuniary interests, and devoting himself entirely to the reform of our tariff laws, especially to the repeal of all duties on the bread of life, became the great apostle of free trade, carried all before him by sound argument and peaceful means, and has left behind him on the page of history an imperishable name.

DISCUSSION ABOUT STEAMSHIPS.

After he had left the room, which he did at an early hour, the conversation turned upon steam vessels, and although almost everyone present had been impressed with the soundness of the principles laid down by the young traveller, they still entertained their own opinions about other questions of progress with which they were more familiar ; and Captain Roughhead stubbornly held that steam vessels would be the ruin of British shipping, if they did not explode and ruin themselves long before they had become numerous enough to bring about the disaster he contemplated. In the first place, however, he prophesied disaster to everybody who invested in steamers to be engaged in over-sea voyages, from the breaking down of their machinery, or the smashing of their paddle-wheels, or the bursting of their boilers.

"It's a' weel enough," he said—he could not deny the fact that steamers had then become a success on the Clyde—"on the river here, whar', if a boiler bursts, provided it has blown nane o' them into the air, the passengers can easily reach the shore ; but whar' wu'd they be at sea in ain o' they clank-clanking puffing machines if the machinery went wrong ? and whar wu'd their paddles be in a storm wi' the waves running mountains high on either side o' them, and tumbling about wi' the green seas half our'e their decks ? Whar would they be I would like tae ken, if any rational man wae experience can tell me ?"

At this interrogatory, which our skipper considered a clencher, he looked about him triumphantly for an answer.

"Ah, whar ?" he continued, without giving time for a reply. "I hae seen a sea that wu'd smash into smithers the strangest wheel-boxes, and as to the wheels themsel's, thae're only meant to drive mills wae water frae dams, whar it is as smooth as on ony loch, and no a bit o' turmoil except what the wheel itsel' kicks up when it feels the weeght o' the stream."

I dare say no one in the room would have been disposed to question his argument had there not been then present a commercial traveller from Lancashire, who had made various voyages by sea in the steamers then plying between Liverpool and the Clyde. Indeed, he had just arrived in the steamer *Superb*, and having encountered very rough weather on the passage, he was prepared to repudiate altogether the dangers which our skipper had said would be the lot of any person who encountered a storm at sea in a vessel propelled by steam. Although the waves, especially about the Mull of Cantyre, were very rough, and dashed against the sides and over all parts of the *Superb*, he said her paddle-boxes were uninjured, and her machinery never stopped, nor was any portion of the wheels in any way disturbed.

But these facts, so specifically stated by the Lancashire traveller, and the equally convincing ones that the steamers *Robert Burns* and *Eclipse* had been running on the same line with the *Superb* for five years, winter and summer, with success, and likewise free from any of the disastrous consequences so vividly impressed on Captain Roughhead's imagination, did not change his opinion. Facts, though stubborn things, were not to be opposed to his practical experience at sea; and although he could not give a single instance where steamers had suffered in the manner he described, he would persist in asking the traveller, "Whar wu'd ye be if the boxes were smashed, and the wheel shaft broken wae the sea rushing through the hole of the shaft? Answer that if ye can!"

"Well," said the traveller, "it does not prove that your arguments are sound even if I cannot say where I should be in such a contingency; but may I ask where you would be if the masts of your vessel were blown over the side, and their wreck started a butt in her planks, or the waves smashed in her hatches?"

Now, as this was a more appropriate inquiry, and more easily answered than the question which a dull-headed "philosopher" put to some young ladies, who, when pushed to answer their inquiry as to how many herrings he would get for a penny halfpenny if a dozen cost a shilling, asked them what would be the cost of a cart of turnips if a cart of potatoes cost twenty shillings, our skipper was obliged to admit that the vessels, sailing as well as steam, would both, under the circumstances contemplated, very likely to go to the bottom.

Nevertheless, Captain Roughhead held to the point that propulsion by steam was very unnatural, as well as very dangerous, even in rivers, but especially at sea. Nor did the further facts that the *James Watt* and *Soho* had for some years successfully maintained the service between Leith and London, superseding the once celebrated Leith smacks, make any impression on him, although the line was then about to be increased by the addition of the *United Kingdom*, of 120 ft. in length, and 200 h.p., the wonder of the period. Indeed, so far from convincing him of the advantages afforded by steam vessels and their safety, these facts only tended to confirm his prejudices against them. We have all heard of what the man did who was convinced against his will.

Nor was Captain Roughhead any exception in his opinions to those which at that period prevailed amongst seafaring men, including admirals, post captains, and even Lords of the Admiralty. Steam was in their opinion a precarious and dangerous mode of propulsion; and certainly, when one recollects the noise which it made when the saltwater-crust was being blown from the boilers as the steamers lay alongside a wharf after the completion of their trip, it is not surprising that such doubts and fears should have so long prevailed.

But whatever suspicion may have been entertained against the safety of steam-engines working in vessels built of wood, the mere suggestion of iron being in future used for the construction of steamers, about which the traveller read a paragraph in a newspaper he had that day received from home, raised a howl of derision in the commercial room of the Wheat Sheaf which made the tumblers ring again.

"Iron float!" exclaimed an old fellow, whom the company present looked upon as an authority in shipbuilding, and as such in the laws of flotation. "Lor', bless your hearts, what are we coming to? What next and next?" he asked, with the gravity of a judge. "Whoever heard of iron floating? Why, it's against natur'!"

And when the traveller suggested that iron *might* be put together in such a form as to float more buoyantly than wood, the company laughed still more derisively, while our skipper broadly hinted that the man from Lancashire "Muh be a born idiot, who oucht neer to hae been out o' Bedlam."

CHAPTER VI.

OUR SKIPPER VENTURES A PASSAGE IN A STEAMER.

Sometimes necessity overcomes our most determined resolutions. Captain Roughhead had resolved never to put his foot on board of a steamer. Nor had he done so up to the time to which I now refer; but as the stage-coach had been reduced to such straits that it only made a journey to Greenock twice a week, he would be obliged, so as to reach that place on the following day, either to take a passage in one of the five boats or hire a special land conveyance, which he could not afford to do.

It was evidently a sore trial to him to give me—on the very evening, too, when he had been denouncing steamers—orders to get up early on the following morning and learn when they sailed for Greenock.

"I dinna like it, Tommy, but ye mun get up by five o'clock, and gang awa' down tae the Broomielaw and see when they blow-ups sail; and see if you can fin' out the steady anes. Ask about the puffing high-pressure anes, for we mun avoid them. Mind that, for if onything goes wrang wi' them, the Lord hae mercy on a' the leeving things on board. We wu'd be sent tae eternity in a jiffy, and that's a verra awfu' thocht."

Of course all I could do was to discover the time of sailing of the different boats, which I ascertained from a number of boards stuck up at the corner of the quay at the foot of Jamaica Street. Each steamer had a board of her own, whereon her name was painted, and below it, in sliding pieces of wood, were specified the ports for which she was destined and

the hours of departure. Finding that the *Rothsay Castle* started at 10 a.m. for Bowling, Dumbarton, Greenock, Gourock, Dunoon, and Rothsay, with goods and passengers, I announced the fact to Captain Roughhead before he was out of bed, and as she was advertised to carry goods as well as passengers, he arrived at the conclusion that she must be a slow and safe boat, and could not be a "high-pressure" one; he resolved to trust himself in her for a passage to Greenock.

To those of my readers who know what the Clyde is now, with its quay walls and vast shipbuilding establishments extending on either side of its banks for five or six miles below the Broomielaw Bridge, I may explain that the river was then a small limpid stream, almost as silvery as it had been in its original state. The quay walls were then confined to the city side, and did not extend more than a quarter, or at most half a mile below the bridge, the arches of which, by the way, had their base surrounded by a ridge of irregular and very slippery stones across which, however, adventurous boys made their way in search of eels and small fish. There was a flight of steps close to the bridge where the fishing vessels landed their cargoes, and below them a small wooden jetty, from which the steamboats plied.

The opposite shore, where are now erected stupendous quay walls and vast sheds, as well as a commodious dock, where vessels of the largest description now lie afloat, was a verdant lawn sloping down to the edge of the river, with two thatched salmon fishing huts on its banks—one on the present site of the dock at the end of a very pretty green lane, and the other about a couple of miles further down the river at Govan, then one of the prettiest rural villages I ever saw, with its tall church spire imbedded amidst a cluster of equally tall luxuriant trees, and in front a well-kept lawn.

Having had a substantial breakfast, the skipper and I left the Whea Sheaf in time for the steamer, parting from the widow as if he was about to embark on so perilous an expedition that he was not likely to have the pleasure of meeting her again, or enjoying the good things of her famous hostelry.

When we reached the *Rothsay Castle*, she had accumulated more steam than was necessary to start with, and began blowing it off with a loud, whirling and wheezing scream, to the horror of the skipper, just as he stepped on board.

"Don't like this, Tommy," he remarked to me, as we crossed the gangway. "She's, after a', a reg'lar high-pressure ane, in spite o' her carrying goods—a thorough blower-up. Why didn't you speer mair partic'larly aboot her?"

Of course I had no means of inquiry; the board told me nothing beyond her name and destination; and the fact that she was to carry cargo as

well as passengers had induced Captain Roughhead to believe that if any steamer was safe, he had a right to expect that the *Rothsay Castle* would be safer than the other more modern boats which professed to make the passage in less time.

But our skipper was evidently very uneasy in his mind, and immediately he got on board he took a seat on the taffrail, as far away from the engines as possible, so that if the boilers did burst he would be ready to jump overboard and swim for his life; and there he sat until the *Rothsay Castle* reached Greenock.

RETURN IN SAFETY TO GREENOCK.

On our arrival, Conchie welcomed him with the information that the *Arethusa* had been hauled from the grid-iron, where she had been placed for a couple of tides to examine her bottom, to her loading berth, and that she had not sustained any damage to her copper from grounding at the Cumbræes, which he thought "very funny;" and that the Laird, who had returned by post-chaise to Greenock in the course of the previous evening, had not said anything to him about getting on shore, or made any inquiries as to how she got there, which, in the opinion of Conchie, was still more funny. But, strange as it may seem, this satisfactory information only drew from our skipper a growl directed against his only mate, as if he had been the sole cause of the brigantine getting on shore.

Is it not an extraordinary fact that men in supreme authority never do see that they themselves can possibly be the cause of any mischief? It is invariably the fault of their subordinates; and in the case of skippers, the weather, or the winds, or the charts, or the tides, or their mates, or their men, are invariably to blame. But I thought at the time that it was very hard upon Conchie to be blamed, as our skipper's growl insinuated, for having had anything to do with running the *Arethusa* on shore, as I knew that it was done during his watch below, and that he was in bed at the time.

However, Conchie took the skipper's growling all in good part. He knew that no harm was meant by it; and I dare say he felt that the skipper may have adopted that mode of receiving the information as a means of showing that the subject was not a congenial one to him, and that the accident might not have happened if he on that occasion had taken fewer glasses of whisky-and-water.

SAIL FOR ST. JOHN'S, NEWFOUNDLAND.

In due time the *Arethusa* received all her cargo on board, which consisted of a flooring of coals and bar iron in the lower hold, and above that various casks, with numerous bales and cases of dry goods, part of which consisted of the Greenock draper's out-of-date stock of prints,

dresses, and other articles of haberdashery, which, having gone out of fashion with the ladies of Greenock, might suit the less exacting taste of the ladies of Newfoundland.

Having received our final instructions from the Laird, who he remained at Greenock to superintend the business of the *Arethusa*, we see to her due despatch—as prudent, careful shipowners always did those days—we set sail on our foreign voyage from the “tail of the bank,” a well-known anchorage ground, off the harbour of Greenock.

I do not recollect anything of unusual interest happening on our voyage to St. John's, except that the *Arethusa* knocked about a good deal when we got off the Mull of Cantyre; but she knocked about a good deal more when we reached the Atlantic Ocean, where she broke a good deal of crockery, and shipped a great many green seas, causing me to feel very sick and very uncomfortable.

I then discovered that a seafaring life was not so very charming as I had anticipated, and when “Slushey” gave me a belabouring for tumbling into the lee-scuppers with a bason of pea-soup which he had entrusted me to convey from the galley to the cabin, I really did think that I should have been somewhat more comfortable than where I was had I remained in the Manse, even with the schoolmaster's strap so vividly in my recollection.

However, as Captain Roughhead forgave me, though the cook never did, and Conchie only said, when he saw me sprawling amidst the broken crockery and pea-soup in the lee-scuppers, “how very funny I soon got over this, my first disaster at sea; indeed, the cook got the worst of it, for the skipper was very angry at the loss of his soup, and called the cook many hard and nasty names for having entrusted to my care, instead of fetching it from the galley himself, when I saw that the *Arethusa* was tumbling about at such a rate in the heavy sea-way.

A DISSERTATION ON THE VALUE OF SEA-LEGS.

I think now, on mature consideration, that our skipper was right in this case. To convey in safety along the deck in a stiff breeze of wind when the sea is washing into the waist, and when the vessel is rolling a dozen degrees on either side, a tureen or kid of hot soup is a feat which only an experienced nautic, with his legs in their prime, can be expected to accomplish with success.

I question if I could do it now. Just let any landsman consider for a moment what is necessary to command success. Suppose a flat dish like a kid, without any handles, full of hot soup. To carry it on an even keel it must be held firmly by both hands, with the forefingers of each hand below the dish, and the thumbs on the rim. The hands, fingers

and thumbs of the person carrying it being thus fully employed, he must depend entirely on his legs to convey him along the slippery deck from the galley-door to the companion watch, and if some one is not there to receive it, he must get it down a steep pair of stairs into the cabin as best he can.

Now, when the rolling of the vessel is considered, and the difficulty of maintaining your own equilibrium, that difficulty is very materially increased when you have not merely to maintain yourself in an upright position, but to balance with your arms and hands a large flat dish with its hot contents, ready at any moment, and with the slightest motion from the horizontal, to lap over the edges and burn your fingers, if they do not scald your person. My readers, be they philosophers, or mathematicians, or sailors, or even cooks, will, therefore, concur with me in the opinion, that when "Slushey" gave me, a boy of fourteen years of age, and without any sea-legs, so very difficult a duty to perform, he displayed an amount of thoughtlessness which was very properly reprimanded by our skipper, to say nothing about the loss of his soup and the destruction of the Laird's crockeryware.

But if it was not that such a system of education might prove rather too expensive, I should teach every youth, destined to follow the sea, the art of conveying along the deck, in a flat dish, liquid of some sort, but should require it to be cold, in case of accident; it would give him a thorough knowledge of how to use his legs to the very best advantage, and that is a matter of far greater importance than most people suppose. Indeed, a thorough command over the legs gives a sailor full scope for the exercise of his arms, so that he is not merely at all times, and on all occasions, ready for the work required of him on board merchant vessels, but especially so on board of men-of-war; sailors, when trained, being the most useful and expert gunners, and in certain descriptions of manœuvring and fighting on shore they are far before the best drilled soldiers.

Sailors: not those fellows called "ordinary seamen" — ordinary enough, in all conscience who, as a rule, are nothing but loafers—but well-trained A.B.'s, who have faithfully served an apprenticeship at sea, are also handy fellows in various other ways. They make first-rate miners, for they can bend their backs and work in holes where no soldier could stoop to get into; they are well adapted for plumbers or slaters, as they can run along the tops of houses without being giddy! And do not all my readers know that when parish authorities—who are always very shrewd, if not always very learned men—require to have anything done to the tops of their steeples they invariably employ sailors for the job when they can get them. Nor are they less handy as painters, for they have a good deal of that sort of work at sea; and they are first-rate reapers,

being short, muscular, limber, and so merry, that they keep all around them in good temper. A merry fellow will do twice the work of a sulky, lounging one, and he encourages others to follow his example.

Thorough-trained sailors are also joiners and carpenters in their way, for they frequently build their sea-chests; they are likewise tailors, for they make their own clothes, especially their inexpressibles, which is indeed the chief article of their attire; musicians, as most of them can play the fiddle; and cooks, for many of them have to learn the culinary art when serving their apprenticeship; and when hard pressed for a job, no men are more admirably adapted for bricklayers' labourers, as they can run along with a hod of lime on their shoulders to tops of high ladders, traverse narrow planks, and carry their burdens to places that would terrify most landmen. There are, in fact, so many employments to which they can readily turn their hands, besides manning our merchant ships in peace, and fighting our naval battles in war, that I wonder our statesmen do not turn their attention with more earnestness than they have hitherto *done* to the creation of a far greater number of seamen than we now possess, for in such a country as this we could have no more useful or valuable men amongst our industrial classes.

I cannot say much about their scholarship or of their book-learning, as hardly any of them could read, much less write, when I made my first voyage to sea, or for a long time afterwards; but that was the fault of the State in not affording them the means of education, and that was the main reason, before we repealed our Navigation Laws, that foreign sailors, especially mates and masters, had so great an advantage over us. They are rather better now, and our officers are all that could be desired, but our sailors have still in that respect a very great deal to learn.

THE "ARETHUSA" ARRIVES AT ST. JOHN'S.

As the *Arethusa* was anything but a fast craft, and as the winds were not very favourable, we were thirty-five days on our passage from Greenock to St. John's. Nothing further worthy of record occurred on the voyage. The routine of every day's work was much alike. Washing decks, setting, shortening, or trimming sails, varied by the duties of splicing and seering ropes, making mats and spunyarn, painting, tarring, and mending sails. There was the usual amount of growling, smoking, and drinking, of which our skipper took rather too much when he had nothing of importance to do, but never otherwise, I must state to his credit. Once, I remember, he lost his balance and tumbled down the companion hatch, which Conchie said was "very funny," considering that our skipper had had more than fifty years experience afloat, and consequently ought to have had at all times and in all places a better command of his sea-legs than he had on that occasion. Now and again we spoke an outward-

bound vessel that had left the shores of Great Britain long after we did ; and a homeward-bound one belonging to Greenock, by which we were enabled to send a letter to the Laird, written by me, to the skipper's dictation. And once, I recollect, we caught a shark, by means of a piece of pork on a large hook, which afforded great delight to all on board. But it was weary work, and we were all glad when we sighted the land.

Everybody knows that Newfoundland is an island belonging to Great Britain in the North Atlantic Ocean, off the East Coast of North America, and that its shores, of nearly 1,000 miles in length, form the eastern boundary of the Gulf of St. Lawrence. Nor need I tell my readers that St. John's, where the *Arethusa* had now arrived, is the capital of that important island.

But everybody may not know that the coast contiguous to St. John's and around the roadstead is majestic, wild, and grand beyond description, and nobody till now knows that it struck me—a matter, perhaps, of not much consequence—with awe, mingled with delight, when I first beheld it.

Land of any kind, after a long voyage, is a pleasing sight ; but to view for the first time, after being thirty-five days at sea, cooped up in a small craft, with nothing to eat but salt, very salt beef and hard, mouldy biscuits, for which I had lost all my boyish charms, such magnificent scenery as was presented on our approach to the shore would have made a poet of me had there been any poetry in me, which I think there is. However, as I did not write a poem on the subject at the time, nor at any time afterwards, and as I am too old to write one now, I must leave that beautiful scene to the imagination of those of my readers who have not visited St. John's.

The harbour is one of the finest in the world ; it is formed between two mountains, the eastern points of these forming on either side the boundary of the safe and deep entrance, called the "Narrows." The anchorage within is excellent, the bay having, over a large portion of its extent, depths of water ranging from three to twelve fathoms. The roadstead is safe from all winds, and, with suitable fortifications at the approach, could be made impregnable. The mountains by which the town and harbour are surrounded are rent in many parts, forming very lofty and precipitous cliffs, which, in some places, rise almost perpendicular from the sea, with deep water at their base. Between the cliffs are deep chasms, where vegetation is luxuriant, though frequently rank, and beyond are many hills and valleys covered with pine wood, and a few other forest trees.

There is nothing in the town of St. John's itself worthy of special notice. A long, straggling street ran nearly parallel to the beach on the north side of the port, where there were a multitude of small wharves, or

wooden jetties, chiefly used for the landing, curing, and shipment of fish. The houses had been principally built of wood; but about ten years before I first visited St. John's a great fire had destroyed most of them, and at the time to which I refer a great many of these had been reconstructed of less perishable materials. A few of them were well built of hewn stone. The export trade of the place consisted then as it does now, chiefly in the shipment of dried fish, caught to an enormous extent on the banks of Newfoundland, and of seal, whale, and cod oil, and of such was the cargo which the *Arethusa* took on board for Lisbon. There were no doubt a good many other articles besides, such as tobacco, cigars, and various other odds and ends which had been imported from the United States, West Indies, and elsewhere, bearing a low, and in some cases almost nominal duty, which usually commanded very high prices at the port whither we were destined. I had no means of knowing if these were shipped on freight on the consigner's account, or were purchases made on account of the Laird for sale at Lisbon, or on joint account for him and our skipper, or whether they were Captain Rough-head's sole venture; but most of these I know were stowed in the cabin, or in a little store-room in the after peak below it, and were under his own special charge.

A PASSAGE TO LISBON.

I enjoyed the passage from St. John's to Lisbon, much more than I had done the one to St. John's. The weather on the whole was much finer. I had got over my sea-sickness, and was much more master of my legs when the *Arethusa* knocked about than I had been, and though the cook did not again test my capabilities in that respect with another basin of hot soup, I could carry dishes from the galley to the cabin without making anything like a thorough smash of them; so that I was getting somewhat proficient in this necessary accomplishment at sea.

I had also learned to go aloft, and could furl the royal in moderate weather, or assist in the stowing of the jib, foresail, or top-gallant sail; but I had become especially useful to our skipper in writing down in the log-book what he told me, for, as I have stated, our only mate, Conchie, could not write, so that, altogether, I had become somebody on board, and had privileges afforded to me which sailor-boys very seldom get. Indeed, as I wrote the captain's letters, though he had not many to write, as well as the log, I daresay he would have dubbed me as his "secretary," had he had any idea of the definition of that now well-worn word, by which anyone who writes occasionally for another is now known.

When crossing the Bay of Biscay, the weather was rather rough, and the seas somewhat high, but when we got to the south of it the sea was

smooth and the sky cloudless, presenting an appearance of deep blue, through which the stars shone far more brilliantly than ever I had seen them do before, and were far more thickly clustered; then the weather was so warm that I could sleep on deck all night, which I had not previously been able to do, and that was a pleasant change from my confined thwartship berth in the little cabin. At times the porpoises sported about us, and the dolphin, with its ever-changing colours, was an object of increased interest, while the "flying fish," some of which found their way by mishap on board, afforded me no ordinary delight. A sailor's life was then to me one of real enjoyment, and as our skipper was always kind to me, I look back to that period of my life at sea with the most pleasing recollections. Passing under the lee of various small islands, whose names I now forget, we soon afterwards made the land of Portugal, with the celebrated hills of Cintra in the distance, about which I had read, and in nineteen days, from the time of leaving St. John's, we anchored in the still more celebrated River Tagus, opposite Belem, so famed in history.

(To be continued.)

BOOKS RECEIVED.

The Merchant Shipping Act, 1876 (39 & 40 Vict., cap. 80), with an Introduction and copious Notes, showing the Alterations effected in the Law by recent Statutes. By Courtenay P. Ilbert, of Lincoln's Inn, Barrister-at-Law. London: Pewtress & Co., 15, Great Queen Street, W.C. 1876.

THIS special edition of the new Act, with its copious notes and introduction, is intended to make shipowners, shipmasters, and solicitors acquainted with the exact effect of the latest instalment of merchant shipping law. We cannot well express any opinion on its merits as it emanates from our own office, and therefore we simply bring it to the notice of our readers. We may mention, however, that the gentleman whose name appears on the title-page was employed as a draughtsman in the preparation of the measure, and has, therefore, a very complete knowledge of the whole subject.

Weather Charts and Storm Warnings. By Robt. H. Scott, M.A., F.R.S., Director of the Meteorological Office. London: Henry S. King & Co. 1876.

CONSIDERABLE activity has of late years been shown in developing a system of weather telegraphy, and of making the results known through

the medium of the daily papers, and by means of special daily weather reports supplied to subscribers from the Meteorological Office. It has, however, been found necessary to publish these records in a compact and condensed form in the shape of a small chart of the north-western portion of Europe, with figures, lines, and other marks upon it, indicating atmospheric pressure, wind, temperature, and other phenomena, the chart being accompanied with a few explanatory remarks. Without some considerable study of the daily diagrams, it is not easy for the ordinary reader to fully comprehend their meaning and value, and with the object of supplying an explanation of these matters, Mr. Scott has published the work now before us.

For many years now Mr. Scott has devoted his best energies to the science of meteorology, and, ably assisted by Captain Toynbee, has developed the utility of the Meteorological Office to such an extent that it has become of the greatest service to mariners. The system above referred to, by means of which weather intelligence is daily communicated to all parts of the country, originates from the Meteorological Office, as well as the special storm-warnings sent round the coast for the information of seamen. It is, therefore, very gratifying to find the director of this important office coming forward to supplement his, what may be called technical work, with a careful explanation in order that it may be made quite clear to ordinary readers. From the collation of numerous and long-continued meteorological observations, results have been obtained which, though not rising to the dignity of universal law, are sufficient to be of the greatest value to those whose vocation is more or less dependent upon, or connected with the weather, and to render these results perfectly intelligible to those for whose benefit they are intended, is the purpose of the present volume.

Mr. Scott has, in our opinion, made his explanation very clear, and we have no doubt that if our readers on shore will only study Chapters III. and IV., on "The barometer" and "Gradients" in connection with the daily weather reports, they will gain some information which may possibly make their umbrellas last longer than they have hitherto done.

To nautical readers, Mr. Scott's book will, we are sure, be very acceptable; it will explain much that now is not altogether clear, and will enable them so to take advantage of the daily information published regarding the weather, as to assist them in prosecuting their voyages with greater safety.

Latitude and Longitude without Instruments, being a Chart for finding the Hour of Sunrise and Sunset for every Day of the Year at any Place in the Northern or Southern Hemisphere. By W. L. Yonge, Lieutenant-Colonel R.A. London: Letts, Son & Co., Royal Exchange. 1876.

This chart gives a very ingenious and skilful method for finding the hour

of sunset and sunrise; but though the method is correct in principle, we fear that in some cases the results would prove only approximate. The apparent time of sunrise or sunset may readily be found in any of the various epitomes of navigation, or the time may be found accurately in two minutes from the well-known formula $\cos h = \tan \text{lat} + \tan \text{dec}^{\circ}$.

As regards "finding the latitude and longitude without instruments," we are not able to see that this can be done by Colonel Yonge's method. In such a case the time of sunset and sunrise is not of so much importance for the mariner to know as the exact moment of time when the sun's limb (upper or lower) is just touching the sea horizon, and this correct time can only be found by calculation. This is a well-known nautical problem frequently practised by careful navigators, although from the uncertain state of refraction about the horizon other methods are preferable. All navigators know well how difficult it is to tell the exact moment when the sun is actually on the meridian of any place, although it is easy to say when it ought to be there. In like manner it is more difficult, if not impossible, for the mariner to tell by his own observation the exact time when the sun's centre is in the true horizon of the place, although the time when it should be there is readily found.

The gallant colonel's chart is ingenious in design and correct in principle, but we are afraid it cannot be of very much service to the mariner.

Maritime Notes and Queries, a Record of Shipping Law and Usage; also, with Explanatory Comments, the Merchant Shipping Act, 1876. Compiled chiefly from the *Shipping and Mercantile Gazette*. Edited by Sir William Mitchell, J.P., F.R.G.S., &c. London: 54, Gracechurch Street, E.C. 1876.

THE third volume of "Maritime Notes and Queries" deserves as much praise as we have before bestowed upon the first and second volumes. It fully upholds its character as a book of reference for shipowners, shipbrokers, and consignees, and shipmasters' complete guide.

The Merchant Shipping Act, 1876, is a valuable addition to this volume, and will no doubt make it much sought after by the shipping community.

The Law of Storms Considered Practically. By W. H. Rosser. London: Charles Wilson, 157, Leadenhall Street. 1876.

THE chief merit in connection with the numerous works given to the nautical public by Mr. Rosser, consists in their direct practical utility, and the book now before us is no exception to this rule. Without employing the technicalities of expression which are too common in works intended to explain natural phenomena, the author of "The Law of Storms" tells the reader what he has to say in a plain manner, without scientific jargon, and thus brings his matter within the comprehension

of ordinary minds. It is not every skipper who has been educated in scientific fashion, and become acquainted with the technical phraseology used in connection with scientific studies. In regard to the subject-matter of Mr. Rosser's work, it appears to be a brief, but careful and intelligent, compilation of all that relates to the nature of storms, as well as to the development of the various laws and theories as to their causes, which have been from time to time made public. The whole subject, however, has of late years been under continual discussion, and many of the old views having been modified by recent investigations, Mr. Rosser endeavours to put before nautical readers the present state of knowledge on the subject, and to show how that knowledge may be practically applied. This object is very satisfactorily carried out, and therefore the book will be found serviceable by master mariners and officers who make themselves acquainted with its contents.

We have also to acknowledge the receipt of the following works :—

Revue Maritime et Coloniale (Paris), for September.

Rivista Marittima (Rome), for September ; and General Analytical Index for the Years 1868 to 1875.

Patents and Patentees (Victoria), Vol. VIII. ; Indexes for 1873.

Rivista Internazionale. Firenze : August and September.

On the Method of Correcting a Marine Chronometer for Changes of Temperature, according to Mr. Hartnup's Laws, &c. By Arthur Nevins.

Report of the Meteorological Committee of the Royal Society for 1875.

REWARD TO AN ENGLISH CAPTAIN.—At a meeting of the South Shields Local Marine Board, Mr. Yorke, Stipendiary Magistrate, presiding, a letter was read from the Board of Trade stating that they had received a communication from the Italian Ambassador, addressed to Earl Derby, relative to the humane and gallant services rendered by Captain Alexander Rogers, of the barque *David Malcolm*, of North Shields, to the crew of the Italian vessel *Francisco Saverio*, off Cape St. Vincent, and enclosing a medal and a vote of thanks of the Italian Government, for presentation to Captain Rogers. The chairman made the presentation.

SHIPBUILDING, 1876.

STEAMSHIPS.

Ports.	No. of Ships first six months.	No. of Ships added in July and August.	Gross Tonnage first six months.	Gross Tonnage added in July and August.
Glasgow ...	44	16	31,803	10,965
Greenock ...	12	1	6,872	1,209
Port Glasgow	7	6	4,224	1,322
Sunderland	14	1	15,391	1,547
Newcastle	26	10	27,940	5,409
North Shields	8	6	638	562
South Shields	11	1	1,510	295
Liverpool ...	7	8	5,363	2,502
Dundee ...	8	1	2,878	1,268
Hartlepool	5	2	8,722	2,888
Aberdeen ...	4	1	1,186	843
London ...	14	4	1,787	855
Belfast ...	1	—	497	—
Stockton ...	2	—	1,084	—
Middlesbro'	8	4	2,384	3,954
Hull ...	8	—	1,702	—
Bo'ness ...	1	1	75	9
Barrow ...	1	1	790	239
Whitby ...	2	—	2,555	—
Southampton	5	—	788	—
Other Ports	12	6	787	494
Totals	185	64	118,866	38,861

AID TO MERCANTILE TRAINING-SHIPS.—It has been notified to the Royal Dockyards by the Admiralty that in cases where work is performed upon ships belonging to any training-ship society, the percentage usually charged upon labour and material expended in repairing other than Her Majesty's vessels shall not be enforced, but only the actual expenditure incurred shall be claimed.

SHIPBUILDING, 1876.

SAILING SHIPS.

Ports.	No. of Ships first six months.		No. of Ships added in July and August.		Gross Tonnage first six months.		Gross Tonnage added in July and August.	
Aberdeen	6	...	2	...	2,899	...	759
Barrow	2	...	2	...	1,176	...	1,178
Belfast	2	...	2	...	1,385	...	1,490
Bristol	2	...	—	...	246	...	—
Cowes	5	...	1	...	233	...	19
Dartmouth	15	...	6	...	1,624	...	299
Dumdee	6	...	3	...	8,242	...	2,808
Faversham	14	...	1	...	825	...	36
Glasgow	25	...	18	...	24,895	...	14,676
Greenock	9	...	4	...	4,396	...	3,829
Grimsby	14	...	5	...	1,408	...	368
Hartlepool	1	...	1	...	879	...	1,532
Hull	13	...	8	...	1,063	...	615
Jersey	5	...	2	...	312	...	160
Liverpool	17	...	3	...	18,070	...	2,163
London	11	...	2	...	747	...	75
Middlesbro'	4	...	2	...	8,426	...	2,287
Newcastle	2	...	1	...	1,738	...	12
Plymouth	20	...	1	...	1,811	...	12
Port Glasgow	9	...	4	...	7,737	...	4,449
Portsmouth	8	...	—	...	874	...	—
Rochester	9	...	3	...	887	...	123
Southampton	9	...	1	...	1,575	...	1,353
Stockton	1	...	—	...	1,485	...	—
Sunderland	26	...	8	...	19,079	...	5,479
Whitehaven	4	...	1	...	2,482	...	208
Workington	1	...	2	...	771	...	847
Yarmouth	10	...	4	...	484	...	168
Other Ports	102	...	44	...	13,235	...	5,197
Totals	852	...	191	...	112,484	...	50,124

MONTHLY ABSTRACT OF NAUTICAL NOTICES.

No.	PLACE.	SUBJECT.
201	NORTH SEA—Zuider Zee	Alteration in Urk Island Light.
202	ENGLAND	Establishment of Fog-Signals.
203	ENGLAND—South Coast—St. Catherine's Point	Alteration in Fog-Signal.
204	NORTH SEA—Walcheren Island—Oosterhoofd	Discontinuance of Light.
205	MALACCA STRAIT—North Entrance—Pulo Brasse	Discovery of a Rock off West end of.
206	SCOTLAND—Mull of Cantyre—Sanda Island	Establishment of a Fog-Signal.
207	UNITED STATES—Delaware River—Fourteen-foot Bank	Establishment of a Light-Vessel.
208	MEDITERRANEAN—Alboran Island	Establishment of a Light.
209	CHINA—Formosa—Ke-lung Harbour	Discovery of a Sunken Rock.
210	NORWAY COAST	Intended system of Beaconage and Buoyage.
211	RIO DE LA PLATA—Punta Brava	Establishment of a Light.
212	RIO DE LA PLATA—Monte Video	Discontinuance of Breakwater Light
213	RIO DE LA PLATA—Colonía—Farallon Island	Establishment of a Light.
214	AUSTRALIA—Port Phillip—Port Arlington	Establishment of a Light.
215	FRANCE—North Coast—Etaples Bay—Canche River	Relative to Alteration in Lights.
216	FRANCE—West Coast—Loire River—Pierre-d'I'Cell	Establishment of a Light.
217	ENGLAND—South Coast—Dover	Admiralty Pier Light.

NAUTICAL NOTICES.

201.—NORTH SEA.—*Zuider Zee*.—*Urk Island*.—With reference to Nautical Notice, No. 249 (November, 1875), on an intended alteration in the revolving light on Urk island, the change has been effected, and that the light is now a revolving white light, *every minute*, showing a flash of about *ten seconds'* duration, followed by an interval of darkness of *fifty seconds*; it is elevated 82 feet above the sea, and should be seen 15 miles. The tower is square, painted white, and attached to the keeper's dwelling.

202.—ENGLAND.—The Trinity House, London, has given notice that during the month of September, 1876, fog-signals will be established at the under-mentioned stations on the coast of England, namely:—

East Coast.—(1.) Longstone Lighthouse, Farn Islands : Two blasts in quick succession *every two minutes*.

(2.) Spurn Light-Vessel, Humber River Entrance : Two blasts in quick succession *every two minutes*.

South Coast.—(3.) Shambles Light-Vessel : One blast *every two minutes*.

(4.) Start Point Lighthouse : One blast *every three minutes*.

West Coast.—(5.) St. Ann's Head Lighthouse, Milford Haven: One blast every three minutes.

(6.) Carnarvon Bay Light-Vessel: One blast every two minutes.

(7.) Skerries Lighthouse, Holyhead: One blast every three minutes.

203.—ENGLAND.—*South Coast.*—*St. Catherine's Point.*—Also, that during the month of September, 1876, the fog-signal at St. Catherine's point, Isle of Wight, will be changed from one blast every fifteen seconds to two blasts in quick succession every four minutes. Also, that further notice will be issued when the above signals are established.

204.—NORTH SEA.—*Walcheren Island.*—*Oosterhoofd.*—The red light formerly exhibited at Oosterhoofd, north side of Walcheren island, has been discontinued, and the building is in ruins.

205.—MALACCA STRAIT.—*North Entrance.*—*Pulo Brasse.*—Information has been received from Mr. Robert Thomson, master of the steamship *Fleurs Castle*, of the existence of a rock near the west end of Pulo Brasse. This rock (*Fleurs rock*) lies about $1\frac{1}{2}$ miles from the west point of Pulo Brasse, and nearly in line with two small rocks above water off the north point of Pulo Brasse; it is of small extent, and has a probable depth of 6 feet. The water in the vicinity of the rock is discoloured, and breaks when there is any wind. Position (approximately), lat. $5^{\circ} 44''$ N., long. $95^{\circ} 7'$ E.

206.—SCOTLAND.—*Mull of Cantyre.*—*Sanda Island.*—A powerful syren fog-signal has been erected at Sanda island lighthouse. During foggy or thick weather the syren will be sounded once a minute, the sound continuing about seven seconds. The syren is about 150 feet above the sea, and will be best heard between the bearings of East (through North) to West.

207.—UNITED STATES.—*Delaware River.*—*Fourteen-foot Bank.*—Two lights are now exhibited from a light-vessel moored in $4\frac{1}{2}$ fathoms, 2½ cables eastward of Fourteen-foot bank. The lights are two fixed white lights, one hoisted at the foremast head, the other on the mainmast, half-mast high. Both lights should be seen 10 miles. The light-vessel is schooner rigged, and painted yellow, with the words *Fourteen-foot bank* on each side in large black letters. The day marks at each mast-head are red. Ships should pass eastward of this light-vessel. Approximate position, lat. $39^{\circ} 3'$ N., long. $75^{\circ} 11'$ W.

208.—MEDITERRANEAN.—*Alboran Island.*—A light is now exhibited on Alboran island. The light is a fixed white light, elevated 115 feet above the sea, and should be seen 15 miles. The lighthouse is 62 feet high, painted yellow, and rises from the centre of the keeper's dwelling. Position, lat. $35^{\circ} 58'$ N., long. $3^{\circ} 1'$ W.

209.—CHINA.—*Formosa.*—*Ke-lung Harbour.*—Information has been received that H.M.S. *Audacious*, drawing 23 feet, recently touched, at

about 2 miles northward of Ke-lung harbour, on what is believed to be a sunken rock. The rock is stated to lie W. by N. about $1\frac{1}{2}$ miles from Ke-lung island, and is supposed to be a pinnacle, as at the time no soundings could be obtained from the chains with 14 fathoms of line. The weather being unfavourable, the position of the rock could only be approximately determined. An examination of the locality will be made and further notice given when the position is established.

210.—NORWAY COAST.—With a view to the adoption of a general system of beaconage and buoyage on the coast of Norway, the following alterations will shortly be made :—

Beacons or Landmarks.—Fixed landmarks, iron poles and pillars, will be provided with arms indicating the side on which the navigable channel lies. When there is deep water on both sides, the beacons will be provided with two arms, one on each side. Beacons much exposed to heavy seas will not be provided with arms.

Floating Marks.—White poles : A white pole with a broom turned upwards denotes that the shallow water lies north or east of the mark.

Black poles : A black pole with a broom turned downwards denotes that the shallow water lies south or west of the mark.

Striped poles : A pole with white and black horizontal lines and with a ball attached denotes that vessels may pass on either side.

Buoys : The buoys will be painted red, but provided with poles of the colour and description above mentioned.

As a commencement of the intended system, the floating marks on the south coast between the Swedish frontier and Lister, will, from the 1st June, 1877, be altered in conformity with the above notice.

211.—RIO DE LA PLATA.—*Punta Brava.*—Information has been received that, on or about the 15th of July, 1876, a light would be exhibited on Punta Brava, 2 miles to the eastward of Monte Video. The light is a *fixed white* light, visible 12 miles. The lighthouse is 82 feet high, coloured white, and attached to the keeper's dwelling. The illumination is by gas.

212.—RIO DE LA PLATA.—*Monte Video.*—The *red* light formerly shown from the end of the breakwater which extends from San Jose Point, has been discontinued.

213.—RIO DE LA PLATA.—*Colonia.*—*Farallon Island.*—On or about the 15th of July, 1876, a *fixed white* light, visible 12 miles, would be exhibited on Farallon island. The lighthouse is 98 feet high.

214.—AUSTRALIA.—*Port Phillip.*—*Port Arlington.*—An additional light is now exhibited at Port Arlington. This additional light is a *fixed red* light, visible between the bearings of W.S.W. and S.E. by E., and should be seen 7 miles. The first bearing leads clear of Prince George Bank, and the second clears the shoal water off Point Richards. The present green light will continue to be shown from the end of the jetty.

215.—FRANCE.—*North Coast.*—*Etaples Bay.*—*Canche River.*—With reference to Nautical Notice, No. 194 (September, 1876), on an intended alteration in Canche river lights, notice has been given that such alteration will not be made in these lights; they will therefore remain fixed lights.

216.—FRANCE.—*West Coast.*—*Loire River.*—*Pierre-a-l'Œil.*—From the 15th October, 1876, a light will be exhibited from the stone tower Pierre-à-l'Œil, $4\frac{3}{4}$ cables to the westward of the harbour light of Paimbœuf. The light will be a *fixed red* light, elevated 15 feet above high water, and visible 8 miles. Pierre-à-l'Œil light kept in line with the harbour light of Paimbœuf, bearing S. 75° E., will lead through the main channel of the Loire between St. Nazaire and Paimbœuf.

217.—ENGLAND.—*South Coast.*—*Dover Bay.*—From the 11th October 1876, a light will be exhibited from a tower on the outer end of the Admiralty pier. The light will be a *fixed white* light, varied by *flashes* at intervals of *seven seconds and a half*, of the sixth order; it will be elevated 44 feet above high water, and the fixed light should be visible 6 to 7 miles—the flashes somewhat farther. The tower, 80 feet high, is painted red. Also that a bell will be sounded in foggy weather, giving single strokes at intervals of seven seconds and a half. Also, that after the above-mentioned date, the blue light at present shown from the end of the pier will be discontinued.

HYDROGRAPHIC NOTICES PUBLISHED BY THE ADMIRALTY.

- No. 22.—ENGLAND, South-East coast.—Harbour tidal signals at Folkestone.
- No. 23.—CHINA.—Information relating to Mirs bay, Hungwa channel &c., 1876.
- No. 24.—AUSTRALIA, North, North-West, and West coasts and Arafura sea.—Information relating to, derived from various documents received in Hydrographic Office, 1876.

CHARTS, &c., Published by the Hydrographic Office, Admiralty, to the end of September, 1876, and sold by the Agent, J. D. Potter, 31, Poultry and 11, King Street, Tower Hill.

No.	Scale.			
819	m = 3·0	Ceylon :—Approaches to Pointe de Galle harbour including Gindurah and Bellows rock	1	6
2259	m = 1·1	Savannilla harbour and Rio Magdalena	1	6
786	d = 0·52	Pacific Ocean, eastern part :—Cape Horn to Cape Corrientes	3	6

OUR OFFICIAL LOG.

BOARD OF TRADE INQUIRIES.

Name of Vessel.	Port.	Nature of Casualty.	Judgment of Court.
<i>Huron</i>	London ...	Stranded...	Master's certificate suspended for six months.
<i>Madcap</i>	Glasgow ...	} Collision...	Certificate of Master of <i>Owl</i> returned.
<i>Owl</i> (ss.)... ..	Ditto ...		Certificate of 2nd Mate of <i>Owl</i> suspended for six months.
<i>Margarett</i> ...	Sunderland...	Stranded...	Master's certificate suspended for six months.
<i>Mary Olivia</i> ...	Chester ...	Ditto ...	Vessel struck by a squall, broached to and stranded.
<i>Memphis</i>	Liverpool ...	Ditto ...	Master and Mate exonerated.
<i>Monte Moro</i> (ss.)	South Shields	Ditto ...	Master's certificate returned.
<i>Sussex</i>	Windsor, N.S.	Abandoned	Master's certificate suspended for six months.
<i>Tunstall</i>	London ...	Foundered	Master's certificate returned.

QUARANTINE NOTICES.

BOARD OF TRADE, Aug. 17.—The Board of Trade have received, through the Secretary of State for Foreign Affairs, a copy of a despatch from Her Majesty's Consul-General at Bagdad, stating that all arrivals from the Persian Gulf will be admitted to free pratique. The Board of Trade have also received, through the Secretary of State for Foreign Affairs, a copy of a despatch from Her Majesty's Ambassador at Constantinople, stating that the Russian Sanitary Board require the number of passengers carried by vessels arriving from Ottoman Ports to be exactly stated in the bills of health, otherwise such vessels will be subjected to ten days' quarantine.

BOARD OF TRADE, Sept. 18.—The Board of Trade have received, through the Secretary of State for Foreign Affairs, a despatch from Her Majesty's Acting Consul at Teneriffe, stating that homeward-bound African mail-steamers and other ships from the West Coast of Africa arriving at the ports of the Canary Islands, are admitted to free pratique provided that their bills of health be clean, and that the state of health on board be satisfactory.

IMPORTANT NOTICE TO SHIPOWNERS, AGENTS, AND BROKERS.—SURVEYS.—The Board of Trade have recently instituted a searching investigation into the state of their surveying staff, and to the manner in which their duties are performed; and the following extracts from a report which has been made to them are printed for the information of all persons interested in the survey or inspection of ships:—It is, of course, next to impossible to arrive at anything like a satisfactory estimate of the time which the survey of a steamship occupies. We have endeavoured to get at something like an idea by questioning several surveyors upon the point, and are led to the conclusion that in the case of an ordinary foreign-going steamship, of moderate tonnage, in fair condition, and with everything prepared for the surveyor, from 10 to 13 hours or more would be employed to make a careful and complete survey such as should be made, whilst this period would be spread over several visits. But from what we gather, although probably many vessels would be surveyed in this time, and some even in much less, in a very large number of cases the survey would take considerably longer; added to which we found it stated that the surveyors frequently met with but scant facilities on the part of some shipowners or their employés, and are consequently delayed in their work, and have to increase the number of visits, in consequence of insufficient arrangements on the part of those connected with the ship, at times even when they are quite aware of the surveyor's requirements for the purposes of his survey. . . . We have already referred to one other way in which the surveyors may obtain relief in the performance of their duties, *i.e.*, in the facilities afforded by shipowners themselves; we would further suggest that it be an instruction to the principal of the office to report every case of systematic omission to afford due facilities for surveys which he has failed by his own endeavours to obtain, with a view to a communication being made by the Department to the owner or manager of the vessel in fault. In pursuance of the reports made to them, the Board of Trade have also re-organised and considerably increased the strength of their survey staff. They invite the co-operation of the shipping community in carrying out the duties with which they have been entrusted by the Legislature; and they trust that whenever the services of their officers are called into requisition such facilities as may be required will be cordially afforded. It will be obvious that loss of time caused by the neglect of owners and others to facilitate the performance of the surveyor's duties must be prejudicial to the shipowning community at large. An Instruction in the sense of the concluding portion of the above extracts has been issued to the Inspectors of Districts. On the other hand the Board will, at all times, be prepared to fully investigate any representations [fairly made to them by ship-

owners, agents, and brokers relative to the manner in which the duties of the surveyors are performed.—EDWARD STANHOPE, Secretary ; THOMAS GRAY, Assistant Secretary.—*Board of Trade Circular, No. 72, August, 1876.*

INSTRUCTIONS TO SURVEYORS OF STEAMSHIPS.—RESPONSIBILITIES OF SURVEYORS UNDER THEIR DECLARATIONS, AND SURVEY OF STEAMSHIPS FOR PASSENGER CERTIFICATES St. 3, 4, and 5.—The following extract from a report which has been made to the Board of Trade as to the performance of the duties of the surveyors at St. Katherine Dock House, is printed for the information of the surveyors :—“ The surveyors, we find, are frequently led to accept work by their colleagues in lieu of their own. This may possibly be the case only under pressure of circumstances, but it appears to us a matter of such considerable importance that we should not be justified in passing it by without a distinct expression of opinion. It seems clear to us that any arrangement by which a surveyor is enabled to divest himself of responsibility is questionable, and though there must necessarily be urgent and exceptional cases in which it is absolutely impossible for an officer to examine every detail of a survey assigned to him, it would be better to deal with such cases in a clearly defined way rather than allow a system of divided responsibility to exist. Such cases may be met in two ways :—(1.) By requiring a survey *ab initio* by the surveyor who has finally to sign the declaration. (2.) By limiting every declaration to the details for which the surveyor signs. We have no hesitation in recommending that the latter course be adopted qualified in the following manner :—The surveyor who is to sign the principal declaration for the ship should be held responsible for every detail, except such as he distinctly specifies upon it as having been unable to complete. Such specified details must be subsequently attended to by other surveyors, who must give separate declarations in respect of them. These declarations in the aggregate would form the complete declaration for the ship. In this way the value of declarations in the estimation of shipowners would be maintained, and a surveyor would have no possible excuse for doubting the measure of his responsibility. In the case of the declaration for excursion limits, we gather that scarcely any surveyor would be prepared to accept the full responsibility for a vessel previously surveyed in another district, without a complete re-survey of the vessel by himself. It would therefore be undesirable to lead the owner to apply for survey for excursion limits in any but the district in which the steamer is to ply.” The Board of Trade have adopted the second of the courses above suggested, qualified as indicated ; and the surveyors generally are therefore instructed that they are not for the future to sign declarations for any details which they have not surveyed, and for which, consequently, they are not prepared to hold themselves personally respon-

sible. At the same time it is most undesirable that a surveyor should not complete the survey of a vessel in every detail when he has commenced it, and, if possible, arrangements should always be made to secure this. In exceptional cases, however, where this cannot be arranged, the surveyor who commences a survey can only relieve himself from entire responsibility for every detail by distinctly noting on his declaration that he has been unable to attend to certain details specified by him, and in respect of these details so specified only will his claim to irresponsibility be accepted. Care should be taken that declarations are complete in every respect before they are forwarded to the owners of steamships, as if they are received at the Board of Trade in an incomplete state, the Board will not be in a position to issue the passenger certificates for the vessel. All supplementary declarations should be strung on to the main declaration, the knot being sealed with the office seal to prevent disconnection. As regards the recommendation respecting the survey of steamships for excursion certificates, the surveyors are informed that the survey of steamships for passenger certificates other than Stm. 1 (foreign-going), or Stm. 2 (home trade), should not be made in any district other than that for which the certificate is required, and in which the vessel is intended to ply; and persons interested should always be informed that a survey for such classes of certificates made out of the plying district may not be sufficient for dispensing with another survey when the vessel arrives within such district, and for this further survey a fee will have to be paid notwithstanding the payment of fee for the previous survey. This does not apply to the survey of the bottoms of these vessels in dry dock, or to inspections of them during construction, or to the testing by hydraulic pressure of boilers intended to be placed in them, which may, as heretofore, be performed at any port, provided the surveyors forward the usual declaration to the surveyors at the port at which the survey is to be completed, in order that it may be there connected with the main declaration and sealed as above described.—EDWARD STANHOPE, Secretary; THOMAS GRAY, Assistant-Secretary.—*Board of Trade Circular, No. 70, August, 1876.*

INSTRUCTIONS FOR MEASURING SPACE OCCUPIED BY DECK CARGO ON BOARD OF FOREIGN-GOING SHIPS.—MERCHANT SHIPPING ACT, 1876.—1. Section 28 of the Merchant Shipping Act, 1876, is as follows:—"Deck Cargoes.—If any ship, British or foreign, other than home trade ships as defined by the Merchant Shipping Act, 1854, carries as deck cargo, that is to say, in any uncovered space upon deck, or in any covered space not included in the cubical contents forming the ship's registered tonnage, timber, stores, or other goods, all dues payable on the ship's tonnage shall be payable as if there were added to the ship's registered tonnage the

tonnage of the space occupied by such goods at the time at which such **dues** become payable. The space so occupied shall be deemed to be the **space** limited by the area occupied by the goods and by straight lines inclosing a rectangular space sufficient to include the goods. The **tonnage** of such space shall be ascertained by an officer of the Board of Trade or of Customs, in manner directed by sub-section four of section twenty-one of the Merchant Shipping Act, 1854, and when so ascertained shall be entered by him in the ship's official log-book, and also in a memorandum which he shall deliver to the master, and the master shall, when the said dues are demanded, produce such memorandum in like manner as if it were the certificate of registry, or, in the case of a foreign ship, the document equivalent to a certificate of registry, and in default shall be liable to the same penalty as if he had failed to produce the said certificate or document." 2. Section 44 of the Merchant Shipping Act, 1876, is as follows:—"Nothing in this Act shall apply to any vessel employed exclusively in trading or going from place to place in any river or inland water of which the whole or part is situate in any British Possession, and the provisions of this Act relating to deck cargo shall not apply to deck cargo carried by a ship while engaged in the coasting trade of any British Possession." 3. It will be seen that Section 23 does not apply to deck cargo on board of home trade ships. 4. The following is an extract from the Merchant Shipping Act, 1854, Section 2, defining home trade ships:—"Home trade ship shall include every ship employed in trading or going within the following limits, that is to say, the United Kingdom, the Islands of Guernsey, Jersey, Sark, Alderney and Man, and the Continent of Europe, between the River Elbe and Brest inclusive." 5. At ports where there is an officer of the Board of Trade, charged with the measurement of ships for tonnage, and where the Board of Trade and Board of Customs have not made other arrangements, the duty of measuring space occupied by deck cargo in foreign-going ships will be performed by that officer. 6. In other cases the duty will be performed by an officer of Customs. 7. When a foreign-going ship, whether British or foreign, is about to leave, or has arrived, at any port or place in the United Kingdom with timber, stores, or other goods on deck or in any covered space not included in the cubical contents forming the ship's register tonnage, of which the principal officer of the Board of Trade will be informed by the collector or other officer of Customs, a surveyor should at once be instructed to measure the space as follows, that is to say: The surveyor is to measure along the deck the floor or deck space covered by the cargo at its greatest length, and the greatest breadth of the floor or deck space covered by the cargo; he is then to observe and measure the highest point reached by the cargo. He is then to multiply together the greatest length, breadth, and height so taken, and to divide

the product by 100, and the quotient is to be deemed to be the tonnage of the space. The measurements are to be taken in feet and tenths. The space occupied is to be deemed to be limited by the extremes of "straight lines inclosing a *rectangular* space sufficient to include the goods:" and for the measurement of such a space it is to be remembered, no "*means*," such as are mentioned in Sub-Section 4 of Section 21 of the Merchant Shipping Act, 1854, are necessary. 8. On completion of the measurement and computation of the space or spaces occupied by cargo, and entry of the tonnage in ship's official log-book, which must be produced on board for the purpose, the surveyor will deliver a memorandum (form surveys) to the master, and forward a copy to the collector at the port where the measurement is made. 9. The formula of measurement (surveys) showing the measurements and computation is to be forwarded to the Principal Surveyor for Tonnage, Board of Trade, Downing Street, London, for test and examination. 10. *Expenses*.—Where these measurements are made by officers of the Board of Trade, those officers are to include in their account with the Board a statement of all expenses incurred by them in taking these measurements, and where they are made by officers of Customs, the statement of expense will be sent to the collectors of the ports.—EDWARD STANHOPE, Secretary; THOMAS GRAY, Assistant-Secretary.

INSTRUCTIONS TO SURVEYORS OF PASSENGER STEAMERS AND EMIGRANT SHIPS.—FLAMES ON THE DECK AND LIFEBOUY LIGHTS.—The 21st section of the Merchant Shipping Act, 1876, is as follows:—Every sea-going passenger and every emigrant ship shall be provided to the satisfaction of the Board of Trade—(1.) With means for making the signals of distress at night specified in the first schedule to "The Merchant Shipping Act, 1878," or in any rules substituted therefor, including means of making flames on the ship which are inextinguishable in water, or such other means of making signals of distress as the Board of Trade may previously approve; and (2.) With a proper supply of lights inextinguishable in water, and fitted for attachment to life-buoys. If any such steamer or ship goes to sea from any port of the United Kingdom without being so provided as required by this section, for each default in any of the above requisites the owner shall, if he appears to be in fault, incur a penalty not exceeding one hundred pounds, and the master shall, if he appears to be in fault, incur a penalty not exceeding fifty pounds. Circular, No. 508, October, 1871, M. 6922, is as follows: "The Board of Trade having received favourable reports of 'Holmes's Patent Storm and Danger Signal Light,' have, in terms of Section 801 (4) of the 'Merchant Shipping Act, 1854,' approved of this light as a 'means of making signals' for use in 'sea-going steamships employed

to carry passengers.' The substitution of a number, not, however, exceeding six in all of these lights for a like number of blue-lights or portfires in the case of any steamship will, therefore, not be regarded as failure to comply with the provisions applicable to signals of distress." Circular 667, November, 1878, M. 14,847, is as follows:—"The Board of Trade have approved of 'Holmes's Patent Storm and Danger Signal Light' as one of the means of making signals of distress, under the provisions of Section 18 of the 'Merchant Shipping Act, 1878,' and of Schedule 1 of the said Act; and the signals alluded to may be passed accordingly. This instruction is to be read as a continuation of Circular 508 on the same subject." After the 1st October next, the surveyors should, until further instructions are issued, continue to grant their declarations for sea-going passenger steamers, Forms Surveys 1, 2, and 8; and their certificates for emigrant ships; provided that there are on board not less than two of the storm and danger signal lights, referred to in Circular 677, and six of the smaller lights of a similar description with means for attaching them to life-buoys.—EDWARD STANHOPE, Secretary; THOMAS GRAY, Assistant-Secretary.—*Board of Trade Circular, No. 73, September, 1876.*

SHIPPING TRADE OF HAMBURG.—The Board of Trade and Navigation at Hamburg have issued a statement showing the movements of vessels of all nations in that port from the year 1866 to 1875, inclusive. The number of ships which arrived in that port in the time mentioned was as follows:—German steamships, 1,729; ditto sailing vessels, 15; English steamers, 5,564; ditto sailing vessels, 18; French steamers, 580; ditto sailing vessels, 4; Norwegian steamers, 20; ditto sailing vessels, 1; Danish sailing vessels, 2; Belgian steamers, 12; Russian ditto, 2; Swedish ditto, 74; ditto sailing vessels, 1; Dutch steamships, 288; ditto sailing vessels, 3; 1 Spanish steamer; 1 Italian ditto; 1 Portuguese ditto; making a total in ten years of 8,261 ships, with a nett tonnage of 4,504,329 British register tons. The departures of vessels from Hamburg in the same period are:—For Aberdeen, 2; Amsterdam, 207; Antwerp, 419; ditto and Havre, 1; Bordeaux, 18; ditto and Havre, 569; ditto and Antwerp, 8; Bayonne, 2; Bristol, 20; Cardiff, 6; Cette, 1; Dunkirk, 1; Dundee, 88; Goole, 26; Grimsby, 946; Gothenburg and Copenhagen, 69; Glasgow, 1; Hull, 1,775; Hartlepool, 896; Ports of the Mediterranean, 115; Ports on the Weser, 8; Ports on the Elbe, 54; Havre, 6; ditto and Antwerp, 2; ditto and Rotterdam, 58; King's Lynn, 125; Leith, 448; Liverpool, 868; London, 1,692; Middlesbrough, 4; Middleton, 1; Newcastle, 28; Norway, 20; Rouen, 5; Rotterdam, 128; Stettin, 1; Transatlantic ports, 148; making a total of 8,261 departures in the ten years.

PARIS EXHIBITION, 1878.—BOARD OF TRADE, SEPT. 11.—The Board of Trade have received from the Secretary of State for Foreign Affairs a copy of a decree of the French Government respecting the free admission of goods destined for the Universal Exhibition to be held in Paris in 1878. The provisions of the decree are as follows:—"The Exhibition buildings, &c., will be constituted a Customs entrepot. Articles intended for exhibition may be forwarded direct to the building, either under the conditions of international or ordinary transit, and with exemption from the statistical duty. Goods forwarded by international transit will not be subject to Customs' examination; goods forwarded by international transit will receive only a summary examination, and the seals of the Customs will be affixed gratuitously. Goods admitted to the Exhibition which shall be delivered for consumption will, whatever their origin, be subject to only such duties as are applicable to similar produce of the most favoured nation."

GENERAL.

WARSHIPS BUILDING IN GLASGOW.—The Admiralty have intimated that the six single-screw steel and iron corvettes, 2,000 tons each, to be built by John Elder and Co., Glasgow, shall be named respectively, *Comus*, *Carysfort*, *Cleopatra*, *Curasco*, *Champion*, and *Conquest*. The steel plates will be supplied by the Bolton Iron and Steel Company, the London Siemens Company, and the Cyclops, Sheffield, and West Cumberland Iron Company. The builders are to be allowed two years to complete their contract. The total cost will be fully half a million.

NAVIGATION AND SHIPPING IN 1875.—The annual statement of the Navigation and Shipping of the United Kingdom for 1875, compiled by the Registrar-General of Shipping and Seamen, under the direction of the Board of Trade, has been published. Part II. contains the continuation of the general tables, and Part III. the comparative figures for the twelve months. In England 241 iron sailing and steam vessels were built, with a tonnage of 183,420, in the period covered for the returns; 371 wooden vessels, with a tonnage of 34,611; and 5 composite vessels, with a tonnage of 2,005. The total number of vessels built in England during the year was 617, and the estimated tonnage 220,036. In Scotland the figures were 285 vessels, and a total tonnage of 186,247; and in Ireland 21 vessels were built, the tonnage of which was 14,268. Particulars are given of the trade with each country, the vessels of each nation, entered and cleared, the vessels registered under the Merchant

Shipping Acts, and those registered under the Sea Fisheries Act of 1868, together with other statistics and information of great value to the shipping and mercantile world.

MERCHANT SHIPPING.—The Board of Trade Annual Merchant Shipping Tables show, at the end of the year 1875, merchant vessels belonging to the United Kingdom of 6,087,701 tons, including the whole British Empire, 7,744,237 tons. The merchant vessels belonging to the United States, on the 30th of June, 1875, comprised 1,558,827 tons registered for over-sea foreign trade, and 3,238,390 tons enrolled for home trade, including lake and river steamers, but not vessels below 20 tons. The following returns are to the end of 1874 :—German Empire, 1,068,888 tons ; France, 1,037,272 tons ; Italy, 1,081,889 tons ; Holland, 511,980 tons ; Belgium, 45,322 tons ; Sweden, 597,592 tons ; Denmark, 212,600 tons ; Norway (1878), 1,245,293 tons ; Austria (1878), 273,221 tons. Taking steam-vessels only, the amounts for the same dates as above are as follow : United Kingdom, 1,943,197 tons ; the British Empire, 2,072,804 tons ; United States, 121,689 tons and 976,979 tons respectively ; German Empire, 189,998 tons ; France, 194,546 tons ; Italy, 52,370 tons ; Holland, 71,101 tons ; Belgium, 30,397 tons ; Sweden, 59,229 tons ; Denmark, 27,381 tons ; Norway, 39,295 tons ; Austria, 55,966 tons.

THE NEW SLAVE CIRCULAR.—The following Parliamentary Paper has been issued to members of Parliament :—"Instructions respecting reception of Fugitive Slaves on Board Her Majesty's Ships.—To all Commanders-in-chief, Captains, Commanders and Commanding Officers of her Majesty's ships and vessels, the following instructions are to be considered as superseding all previous instructions as to the receipt of fugitive slave. (1.) In any case in which you have received a fugitive slave into your ship, and taken him under the protection of the British flag, whether within or beyond the territorial waters of any State, you will not admit or entertain any demand made upon you for his surrender on the ground of slavery. (2.) It is not intended, nor is it possible, to lay down any precise or general rule as to the cases in which you ought to receive a fugitive slave on board your ship. You are to be guided as to this by questions of humanity, and these considerations must have full effect given to them whether your ship is on the high seas or within the territorial waters of a State in which slavery exists ; but in the latter case you ought at the same time to avoid conduct which may appear to be in breach of international comity and good faith. (3.) If any person within territorial waters claims your protection on the ground that he is kept in slavery contrary to treaties with Great Britain you should receive him


until the truth of his statement is examined into. This examination should be made, if possible, after communication with the nearest British Consular authority, and you should be guided in your subsequent proceedings by the result. (4.) A special report is to be made of every case of a fugitive slave received on board your ship."

GOING ON BOARD SHIP WITHOUT PERMISSION.—THE "**LANCASHIRE LASS.**"—At the Thames Police Court, Robert Crutchley, a boarding-house keeper, of 717, St. George's Street, was summoned before Mr. De Rutzen, for unlawfully going on board the *Lancashire Witch* before its final arrival in dock, without the permission of the captain or mate, whereby he had incurred a penalty of £20. A gentleman from the Board of Trade conducted the prosecution. Robert Giles, a Thames constable, said that about ten o'clock on the morning of Wednesday, the 2nd August, he was in company with George Lander, a Thames constable, on board a ship by the pier-head at Blackwall. The *Lancashire Witch* was at anchor between 40 and 50 yards outside the West India Dock, waiting her turn to enter the dock. He saw the defendant on board, and drew Lander's attention to him, when that constable entered a boat, and went off to the ship. George Lander said, that on going on board he saw the defendant talking to a seaman, and, after speaking to the captain and mate, ordered him to leave. The defendant said he only came on board to speak to one of the seamen, and left the ship. William Thompson, captain of the ship, said that on the 2nd instant they arrived from the West Indies, and anchored between 40 and 50 yards in the river outside the West India Dock. He knew the defendant by appearance, but did not see him on board at all that morning, and he had no business whatever to be there. Robert Best, mate, saw the defendant on board, and ordered him to leave. He was "talking foreign" to some of the seamen at the time, and did not have his permission to be there. The defendant, in answer to the charge, said he was informed that one of his lodgers was on board. He went, and, finding he was not there, left the ship directly. Mr. De Rutzen said it was clear, from the defendant's own statement, that he was on board before the ship's arrival in dock, and had incurred a penalty of £20. He should mitigate the amount to one-half, £10, and hoped it would be a warning to all others going on board, and infringing what was a very salutary Act.

THE FRENCH MERCHANT MARINE.—The agitation of the French ship-owners for the restoration of protection has moved the Chamber of Commerce of Bordeaux to address to the Superior Council of Commerce a long and able letter in support of free trade principles. The shipowners allege that the Commercial Treaty with this country, in consequence of

which the French Navigation Laws were partially repealed or modified, has ruined the shipping interest, and that it is gradually transferring from France the portion of the carrying trade she formerly possessed. As the Commercial Treaties are about to be renewed, the shipowners are using every effort to get as much protection as possible. Especially they are anxious for a re-establishment of the *surtaxe de pavillon* and an increase of the *surtaxe d'entrepôt*. The *surtaxe de pavillon*, it may be necessary to remind some of our readers, was the special duty levied on foreign ships importing goods from a third country, as, for example, an English ship taking to France a cargo of American cotton or tobacco. The *surtaxe d'entrepôt* is the special duty on a foreign ship importing commodities, not from the country where they are produced or manufactured, but from an *entrepôt*, as, for example, a Belgian ship importing Chinese tea from London. The former of these duties was repealed altogether in 1866, the second reduced. The Chamber of Bordeaux argues with just force that a concession of the shipowners' demands would not revive the shipping trade—would not enable France to compete with the rest of the world—but would simply confirm the shipowners in the lethargic routine which has brought the trade to its present pass. Furthermore, the Chamber, while admitting that the trade is not prosperous, points out that there is much exaggeration in the complaint of the Protectionists. According to the statistics of the Customs department, the French sailing fleet has decreased in the five years, 1870-4, by 78,100 tons. But, on the other hand, the steam Marine has increased by 43,131 tons. Steamers, the Chamber assume, are at least three times as efficient as sailing vessels. If that be so, the effective power of the French Mercantile Marine has not decreased, but has increased 51,293 tons. The statistics of the Bureau Veritas differ from those of the Customs; but the argument is, of course, the same, though the ultimate figures are not. Again, the chamber show that, while in the period 1861-74 the total of the French Marine, as compared with all other Marines, has fallen from 33 to 29 per cent.; the actual tonnage has risen from 2,241,000 tons to 3,385,000 tons. Relatively there has been decrease, positively increase. The French Marine, therefore, has simply not kept pace with its competitors. As to the causes of this slower growth, the Chamber are of opinion that they are to be found in the general well-being of the French population, which disinclines people to a sea life; in the benumbing influence of protection in former times; and, recently, in the general feeling of insecurity produced by the events of 1870-71. The shipping trade is pre-eminently one in which we have to look a-head, and the events of 1870-71 discouraged investments that require, to be profitable, a long period of security. Therefore, the old worn-out wooden ships have not been condemned and replaced.

THE SHIPMASTERS' SOCIETY.

INCE the publication of our last number the Society has made a considerable move forward. Commodious rooms have been taken at Jeffrey's Square, St. Mary Axe; 110 names have been enrolled as members, the Society is about to be registered under the special sanction of the Board of Trade, and several gentlemen of position and influence in the shipping world have consented to become vice-presidents.

The Society seems to be gaining strength daily, and we notify the fact in order that master mariners may be informed of the progress of the Society. We hope this satisfactory report will induce many of our readers to join the Society forthwith. In our advertisement columns will be found a fly leaf which can be filled up and forwarded to the Secretary, Shipmasters' Society, Jeffrey's Square, St. Mary Axe, by those who are not near enough to communicate personally.

Now is the time for shipmasters' to unite : it is a splendid opportunity. The following are the published objects of the Society :—

1. The mutual protection and advancement of the general interests of its members (but without power to entertain any question in dispute between a shipmaster and his owners), and for the following purposes:—

2. To defray such legal expenses as the Committee of Management may think it advisable to incur in the interests of its members, subject to the rules, whether in watching any legal proceedings which may, in the opinion of the Committee of Management, involve the interests of one or more of its members, or in affording legal assistance to such of its members as may have to appear in any Court of Law, or in appointing or paying agents at any port to represent this Society.

3. To defray the whole or part of any expenses of or incidental to any effort made by the Committee of Management, or by any person or persons at the request of the Committee of Management, or by their authority to watch over and represent the interests of its members on any proposed alteration of the law or further enactment, or upon the making or sanctioning of any rules or bye-laws in pursuance of any statute.

4. To provide either by building or renting, upon lease or otherwise, suitable premises in which the members of the Society may daily meet together for the interchange of nautical experience and for the purpose of discussing matters affecting the general interests of its members, either in co-operation with other similar societies or alone.

5. To provide such furniture, books, periodicals, publications, and other things as the Committee of Management may deem to be necessary for the use of its members.

THE
NAUTICAL MAGAZINE.

VOLUME XLV.—No. XI.

NOVEMBER, 1876.

OUR MARITIME DEFENCES CONSIDERED, COMBINED WITH
THE MANNING OF OUR MERCHANT SHIPS.

ARTICLE IV.

THE scheme suggested for the training of boys, by the Royal Commission on unseaworthy ships, should not be hastily put aside. It presents the views of men of no common abilities and of great experience, legislative and practical, who, having examined numerous witnesses, favour, after mature consideration, the recommendation that "*all vessels above 100 tons register, whether propelled by sail or steam, should be required to carry apprentices in proportion to their tonnage.*" These words contain the essence of their Report, so far as regards the question of manning; and they involve a great principle, which, I think, has not yet been sufficiently scrutinised in all its bearings.

The Commissioners offer no opinion as to the number of boys to be carried by each ship, wisely preferring that that point should be fully considered by the shipowners themselves before any legislative measures are passed; no doubt they adopt this course with the conviction that all legislation when opposed to the interests of the parties concerned must be futile, except in cases where class interests ought to be rendered subservient to the public good—such, for instance, as the welfare and happi-

ness of the people, the extension of commerce, the prosperity, safety, and defence of the nation, and, of course, the suppression of crime.

As regards the defence of the nation, the shipowners say, "We are prepared to take our part, and bear our share in that defence as subjects of the realm; but we protest against being called upon to do more, and if it can be shown, that the training of apprentices is not for our own good, but is made compulsory, so that the nation may have a reserve of seamen in the hour of need, we decline to pay even the small tax the Commissioners proposed should be levied on those of us who do not consider it for our interests to take apprentices."

Such arguments as these are unanswerable. Previously to 1850, the shipowners were obliged by law to carry one apprentice to every 100 tons, but they did not then consider the obligation a hardship, because they derived, or rather were supposed to derive, by the operation of the Navigation Laws, which were abolished in that year, a special advantage conferred upon no other class of the community. The protection of their interests by law, has since been proved a delusion, and there are, I dare say, very few amongst their number who would now desire to see these laws re-enacted. However depressed the shipping interest may be at present, its enormous increase proves that our shipowners are in a better position than they were previously to 1850, and consequently more able to bear any loss, if loss there be, likely to be sustained by taking apprentices. If such be the case, the question arises, why should they object to carry apprentices now, as they did not do so before? They answer, "Things have changed, and it is not for our interest to engage them." But may not the fact of having been suddenly relieved from the obligation have something to do with the change in preferring "boys" and "ordinary" seamen to take their place, for although no class of the community is now compelled by law to engage apprentices, every class finds it for its interest to do so. There is not a master tradesman in the kingdom—be he shipbuilder, engineer, joiner, or blacksmith—who does not take apprentices, not for the interests of the nation, but for his own. He knows that he is training a class of young men upon whom he can depend, not merely during the term of their apprenticeship, but whose knowledge thus attained will afterwards be the chief, if not the only means of enabling him to compete successfully with other manufacturers, especially with those of foreign nations.

Trades' unions, in their desire to monopolise labour to trained men—that is, to themselves—stoutly oppose apprentices, because they interfere with their monopoly, and tend to reduce the price of their labour; they do so for no other reason (except when they are required to train them without being paid for it), and that reason is diametrically opposed, not merely to the interests of their employers, but to the interests of the

nation, which consist in having the largest amount of skilled labour at the lowest possible cost.

The question, however, of apprenticeship is one with which the Legislature in no way interferes, leaving every shipbuilder, joiner, or engineer, to engage, for a certain number of years, as many youths as he pleases, only taking care to provide by civil law an easy remedy for masters and apprentices alike who vitiate their indentures or agreements. Beyond that, Government has really no right to interfere with the shipowners or with any other class of the community. Indeed it would be a monstrous injustice, I say nothing about its impolicy, to compel by law the employer of labour to engage more persons of any description than are necessary for his wants. If it does not suit shipowners to engage apprentices, they will not engage them; and it would be wrong to compel them for the purposes of the State, or for any other purposes whatever beyond their own wants, to take more at their own cost than they require.

When these requirements are ascertained, we may then be enabled to settle equitably a question which of late years has been one of much controversy, and where not a few somewhat wild and erroneous opinions have been expressed.

Here it may be alike interesting and instructive to remark that in 1845, when the amount of British tonnage was not one half of what it is now, there were no less than 15,704 apprentices enrolled in that year, but in 1850, when the Act repealing the Navigation Laws came into operation, and when shipowners were no longer required by law to carry apprentices, the number enrolled fell to 5,055. The publication of the Board of Trade returns, from which I obtain this information, has been continued, and the latest issued* furnishes the following information :—

On the 31st December, 1870,	there were	18,808	indentures in existence.
On the 31st December, 1871	„	17,092	„ „
On the 31st December, 1872	„	16,539	„ „
On the 31st December, 1873	„	15,815	„ „
On the 31st December, 1874	„	15,812	„ „

Knowing, however, that since the apprenticeship law was abolished shipowners were not required to give any return of the number of apprentices carried, or produce their indentures to the superintendent when shipping apprentices, I thought that this return must include *boys* as well as apprentices, and as it did not furnish me with the information I required, I wrote to the Registrar-General of Seamen, who, with his usual promptitude and courtesy, replied :—

* Tables showing the progress of British Merchant Shipping, ordered to be printed on the motion of Mr. Edward Stanhope, 8th February, 1876.

"On the 31st December, 1872, there were on the books 16,359 enrolled apprentices.

"In the year 1872 there is good reason to believe that there were at sea—

	Apprentices.	Boys.
In 10,600 sailing ships under 100 tons ...	2,082 ...	3,527
In 8,558 „ 100 tons and above	7,385 ...	2,087
In 668 steamships under 100 tons ...	1 ...	204
In 2,040 „ 100 tons and above	76 ...	1047
<hr/> 21,861	<hr/> 9,494	<hr/> 6,865

This shows a difference between the apprentices on the books and those employed of 7,045, some part of whom may be found in the fishing-boats, of which we have no returns. The remainder are probably 'deserters' or 'dead,' of whom we have had no report.

"Of 300 vessels employed in 1876, taken at random (50 of each of the following tonnages), the result is not very different to the foregoing. viz. :—

Tonnage.	Apprentices.	Boys.	Total
100 to 200	8	20	28
200 to 400	27	10	37
400 to 600	54	18	72
600 to 800	24	22	46
800 to 1000	58	20	78
Above 1000	93	37	130
	264	127	391

"Taking, then, the figures for 1872 as accurate, we have in ships of more than 100 tons burden 10,595 apprentices and boys at sea, and the adoption of either of the tables enclosed herewith as a basis for legislation would add materially to their numbers, and would not, probably, be unduly irksome to the shipowner.

"Greatly as I desire to see a system of training-ships worked out for a supply of seamen for the Mercantile Marine no less than for the Royal Navy, I feel convinced all systems will fail unless combined in some form with apprenticeship, and to carry out the latter successfully it will be necessary that the owner, master and boy should have an interest in the arrangement.

"The class of *boys* has no doubt greatly increased of late years, and tends to demoralisation.

"The system of apprenticeship is based on the principle that the apprentice shall repay at the latter part of his service, when he becomes valuable, what he cost his master in the earlier part of his time, when he was valueless. But in practice, we know it too frequently happens that, when an apprentice finds he is working for his master while boys in the same ship are earning good wages for themselves, he puts an end to his indenture by deserting, and, having once become infected with the disease, there is danger that it may become chronic. What seems to be necessary to counteract these evils is the creation of a mutual interest in the three parties to the bargain.

"The points to be aimed at appear to be—

"(1.) Sufficient inducement for the apprentice to stick by the ship and serve out his time.

"(2.) Sufficient inducement for the master and owner to overcome their present unwillingness to look after the welfare of the apprentices when in port.

"Unless we can satisfy these conditions, I have no great hope that the apprentices will be forthcoming when wanted for imperial purposes, and their need for imperial purposes is the only justification which can be pleaded for expending national money in their training. The former condition might perhaps be met by kind treatment, good food, and wages somewhat near his market value being offered to the apprentice. The latter by the remuneration of the master being made in some way dependent on his being successful in retaining the apprentices in the service of the ship."

These figures furnish the amount of the shipowners' wants so far as regards apprentices. If the State compels them, without an equivalent, to engage more, they would be justified in resisting any such measure; for, should the State require more, either for the Royal Navy or for Reserves, or for any other purpose whatever, it would be the duty of the State to provide them solely at its own expense.

I hope I have now clearly defined the basis on which I think all future schemes for manning should in equity be framed.

But before I attempt to raise any fabric on the basis I have named, I desire to address a few words specially to the shipowners, and I hope they will not take it amiss from one of themselves, who has throughout a long life devoted himself earnestly to their interests, though not always in harmony with their views at the time, and who has no interests to serve beyond their own, and the good of this great maritime country.

May I therefore be allowed to ask, Is it for their own interest to engage to the extent they do boys casually for the voyage, instead of for a term of years? I know I shall be met with the answer, "Of course it is, or we should increase the number beyond what we at present employ.

And what is the use of beating about the bush with such facts before you as those you have named ? ”

Well, I must beat about the bush, for it requires beating about, as I am not aware that the truly important subject of manning has ever been earnestly and logically examined.

Shipowners say that they take boys for the voyage because they do not require to maintain them on shore when the voyage is ended ; and that after they have borne the expense of training apprentices for the first year or two of their indentures, when they are of comparatively little use to them, these apprentices desert just when they are becoming useful.

Now these are, no doubt, stubborn facts, but can the evils of which shipowners justly complain not be remedied ? Why do the apprentices desert ? They do so because, after they have been two years, or, perhaps, only one year at sea, and seldom for any other reason, they can obtain, as “ ordinary seamen,” 30s. or 40s. per month ; whereas, as the Registrar-General of Seamen, in substance, justly remarks, they would not, under the conditions of their indentures, receive for the second or third year of their apprenticeship one-half that amount of remuneration. Unfortunately, when apprentices meet, especially in our colonial ports where labour is in demand, a youth of their own age receiving, as an ordinary seaman, 40s. per month, when they have only, perhaps, 15s., they overlook the fact that their employer taught them their duties when they were of little value to him, in the just expectation, that he might be recouped when they grew older, and had more knowledge and experience ; and, regardless of the consequences, having no object in view but their own interests, desert the ship ; but surely this can be remedied by the Legislature inflicting more severe punishment than is now enforced for so serious a breach of their agreement, or by shipowners taking the trouble to prosecute, which they seldom do. It is enforced, and very properly so, with the utmost rigour in all branches of trade on shore—why should it not be so in the case of dishonest apprentices engaged in seafaring pursuits ?

We do not hear of master mechanics engaging half-and-half men in the different branches of their trade, such as ordinary seamen are in their avocations. The employers, as well as the skilled men, who have faithfully served their apprenticeship, are, for their own interests, alike opposed to all such engagements. The only difference between them that ever arises, is one I have already mentioned, whenever the men object to their employers having too many apprentices, for the very illogical and unjust reason, that too many skilled men are thus produced, who interfere with the monopoly which the existing skilled men desire to maintain.

But, let me ask the shipowners, who created ordinary seamen, or half-and-half men—who sent forth to distant ports those inducements for their apprentices to desert? Why, the shipowners themselves, by preferring to take boys for the voyage, which frequently ends with the passage out, instead of apprentices for a term of years; boys who, becoming “ordinary seamen” much sooner than they ought to do, encourage their apprentices to desert to their own loss, and, I must add, to the loss of the nation, which is more interested in having trained and skilled seamen, than men who have served an apprenticeship in any other branch of commerce.

We have thus, at the present moment, through the shipowner's instrumentality alone, far too large a number of half-and-half, comparatively worthless, seamen, who are unfit for their duties in our Mercantile Marine, and who would be of little value as reserves to the Royal Navy in the hour of need. My brother shipowners must not shelter themselves under the bush round about which I am now beating. They, I repeat, have created the evil of which they now so loudly complain; and it is a terrible evil.

I conscientiously believe that far more vessels are lost, and that far more lives are sacrificed, through incompetent and untrained seamen than through “unseaworthy ships;” but while shipowners are to blame for having created the existing state of things, Government is now equally so in not requiring that “sailors” incompetent for their duties shall not be allowed to proceed to sea, any more than unseaworthy ships.

If the principle of examination or certification of competency is sound in the one case, it is more so in the other, as it is the greater evil of the two.

But if shipowners looked more closely to their real interests than they now do in such matters, the evil would soon be rectified, without the necessity of any legislative enactment; they would in their own interests engage an increased number of apprentices, and fewer boys, or so-called ordinary seamen for the voyage, and would decline, as almost any other employer of labour does, to have any master, officer, or man who had not proved himself qualified for his duty. If they did so, the number of apprentices would soon be increased sufficiently to meet all our requirements, and obviate the evils of which they complain.

At present our shipowners engage apprentices where and as they please; but since the State, as a means of procuring honest employment for youths who were destitute, or who might otherwise become pests to society, encouraged the establishment of various training-ships throughout the kingdom, supported by treasury or educational grants, or otherwise, and

by voluntary contributions, the shipowners have taken a number of apprentices, but many more boys from these vessels.

There are now ten Industrial and Reformatory School-vessels, all of which are discarded ships of war, supplied by the Government; and there were by the latest returns 2,175 boys trained in these vessels. As this is the most important branch of my subject, I must explain, for the information of those of my readers who may not be familiar with it, that boys are sent to these Industrial School-ships under the provisions of Sections 14 to 17 of the Act 29 and 30 Vict., wherein their age and

* TRAINING-SHIPS FOR THE MERCHANT SERVICE.—FOR FORECASTLE HANDS.

Port where Ship is stationed.	Name of Ship.	No. of Boys on board 1st Mar. 1876	How supported.	Class of Boys educated.	Average Period of training.
Bristol ...	<i>Formidable</i> ...	351	Government Grant under Industrial Schools Act, 1866, local rates & subscriptions.	Homeless and destitute ..	2 to 3 yrs., never beyond 5 yrs.
Cardiff ...	<i>Havannah</i> ...	78	Local rates and subscriptions.	Ditto ...	3 to 4 "
Dundee ...	<i>Mars</i> ...	298	Government Grant under Industrial Schools Act, 1866, and subscriptions.	Ditto ...	2 years.
Glasgow...	<i>Cumberland</i>	355	Ditto ...	Ditto ...	3 to 4 "
Hull ...	<i>Southampton</i>	198	Ditto and voluntary contributions ...	Ditto ...	Uncertain.
Liverpool {	<i>Akbar</i> ...	188	Ditto ...	Reformatory boys	2½ to 3 yrs.
	<i>Clarence</i> ...	215	Government Grant, county & borough payments in aid, and voluntary contributions. ...	Ditto ...	3½ years.
London:— (Purfleet)	<i>Cornwall</i> ...	225	Government allowance, payments from counties, voluntary contributions. ...	Ditto ...	3 years.
(Grays) .	<i>Goliath</i> ... This vessel was burnt on 22nd Dec. '75, and is to be replaced by the <i>Exmouth</i> .	—	By rates from the unions of Hackney, Poplar, and Whitechapel. ...	Pauper boys from unions	Uncertain.
Shields ...	<i>Wellesley</i> ...	267	Government Grant under Industrial Schools Act, and private subscriptions. ...	Homeless and destitute ...	3 to 4 yrs.

description are stated, and the conditions on which they are received.* They are all friendless youths, without parents or guardians, or who are beyond their control, or have no means for their maintenance, and would consequently be likely to merge into crime were they not provided for ; but, happily, experience has shown that these homeless wanderers have turned out well, as a rule, after passing through an Industrial School. They are destitute, and consequently on the verge of crime—nay, some of them have committed crime in the eyes of the law. But who in his heart can say that these starving children, whatever the Legislature may enact for the safety and well-being of the nation, do

* Classes of Children to be detained in Certified Industrial Schools and Certified Industrial Training School-ships, under the Industrial Schools Act, 29 and 30 Vict., chap. 118 :—

“ Sec. 14.—Any person may bring before two justices, or a magistrate, any child apparently under the age of fourteen years that comes within any of the following descriptions, namely :—

“ That is found begging or receiving alms (whether actually or under the pretext of selling or offering for sale anything), or being in any street or public place for the purpose of so begging or receiving alms ;

“ That is found wandering, and not having any home or settled place of abode, or proper guardianship, or visible means of subsistence ;

“ That is found destitute, either being an orphan, or having a surviving parent who is undergoing penal servitude or imprisonment ;

“ That frequents the company of reputed thieves.

“ The justice or magistrate before whom a child is brought, as coming within one of those descriptions, if satisfied on inquiry of that fact, and that it is expedient to deal with him under this Act, may order him to be sent to a Certified Industrial School.

“ Sec. 15.—Where a child apparently under the age of twelve is charged before two justices or a magistrate with an offence punishable by imprisonment or a less punishment, but has not been in *England* convicted of felony, or in *Scotland* of theft, and the child ought, in the opinion of the justices or magistrate (regard being had to his age and to the circumstances of the case), to be dealt with under this Act, the justices or magistrate may order him to be sent to a Certified Industrial School.”

“ Sec. 17.—Where the guardians of the poor of a union, or of a parish wherein relief is administered by a board of guardians, or the board of management of a district pauper school, or the parochial board of a parish or combination, represent to two justices or a magistrate that any child apparently under the age of fourteen years, maintained in a workhouse or pauper school of a union or parish, or in a district pauper school, or in the poor-house of a parish or combination, is refractory, or is the child of parents either of whom has been convicted of a crime or offence punishable with penal servitude or imprisonment, and that it is desirable that he be sent to an Industrial School under this Act, the justices or magistrates may, if satisfied that it is expedient to deal with the child under this Act, order him to be sent to a Certified Industrial School.”

morally wrong, should some of them have picked up an article within their reach to satisfy the cravings of hunger?

I have before me the reports of all the Industrial School-ships; they are in a great measure under the control of philanthropic men, merchants, shipowners, and others resident in the locality where they are stationed, and the results show that "destitute children lose any tendency to bad habits when received, and soon acquire good ones on board. They become smart, respectful, and obedient, as well as cleanly in their habits, and decorous in their language." Indeed, so far as I can trace, for I have studied almost every report on the subject, there is hardly any perceptible difference, after they are a month or two on board, between them and the boys of the labouring classes; and as I am anxious that the public should thoroughly understand this question and appreciate the true value of these institutions, I shall, at the risk of wearying my readers, furnish them with the substance of the last Report of the *Cumberland*, stationed in the Clyde, as this vessel is a type of the whole.

The *Cumberland*, like all the others, is rather an out-of-date than an old wooden ship of war, supplied by the Admiralty. The average number of boys trained on board of her, in 1875, was 353; they included, as may be seen by the foot-note,* many of the dregs and waifs of society saved from destitution and crime. Out of the whole number, only 91 had both parents living, and if I could analyse who they were it would reveal a sad tale—about as sad as that of those who were parentless. What could be expected of boys thus left, unless the State, aided by men of philanthropy, came forward to save them from crime? Undoubtedly they would become a burthen to the State, either as paupers, wandering about our streets, or as criminals, and thus a far heavier impost would be levied upon us for their capture, conviction, and imprisonment, than the votes now appropriated for their reform.

If we look carefully into this question as a mere matter of cost, we shall find that the country would thus sustain a much greater loss than

* Number of boys on board at 31st December, 1875	...	371
Father dead	... ..	68
Mother dead	... ..	39
Both parents dead	... ..	92
No known father	... ..	18
Father absconded	... ..	25
Father absconded and mother dead	... ..	14
Mother absconded and father dead	... ..	16
Both parents absconded	... ..	8
Both Parents living	... ..	91
		—371

the sum annually voted for the training, education, and maintenance of these destitute boys.* But the question is one of infinitely greater importance to the nation than mere cost, as is shown in a few words of the report of my friend Mr. James Galbraith, the Chairman of the Executive Committee of the *Cumberland*, who remarks:—

“On the 31st December, 1874, 341 boys were on board the ship. There were admitted during the year 163 boys. Between boys on board at the beginning of the year and those received in the course of it, there are thus 504 boys to be accounted for at this time, the close of the year.

“Of these, 11 have been placed in employment on shore, 22 were returned to their friends in consequence of the circumstances of latter having improved, or for other reasons; 4 were transferred to a landward industrial school; 89 were sent to sea (3 of these to the Royal Navy); † 3 absconded, and 4 died; making 133 who have left the ship in 1875, and 371 on board at 31st December, 1875.

“The average number of boys on board during 1875 was 353.

* By the last year's accounts (1875) the *Cumberland* received from the Treasury, £5,577 14s. 10d.; from local assessment, £771 6s. 9d.; from the Commissioners of the Glasgow Houses of Refuge, £850, and raised the balance necessary to cover the total expenditure (which amounted in round numbers to £3,000) by private annual subscriptions and donations.

† The conditions on which the Admiralty receive boys from training-ships are as follow:—

“The sum of £25 will be paid to the committee of the training-ship for boys who join the Royal Navy who fulfil the undermentioned conditions:—

“1. They must have been for two entire years under training on board a training-ship, and subject to inspection by officers appointed by the Admiralty.

“2. They must be sixteen years of age, not less than 5 feet 1 inch in height, and 30 inches chest measurement; of robust frame, intelligent, sound and healthy constitution, free from physical defects or malformations, and not subject to fits.

“3. They must be able to read and write, and show satisfactory proficiency in cutlass, small arm, and gunnery drill, as well as in elementary subjects connected with navigation and seamanship, such as log, lead, compass, rowing, swimming, reefing and furling sails, steering, knotting, splicing, stropping, and rule of the road.

“4. Application for entry into the Royal Navy is to be made by the committee of the mercantile training-ship on behalf of the boy to the officer of the port or district authorised to enrol boys in the Royal Navy, and the sum of £25 will be paid on completion of the enrolment.

“5. This payment will not be made in respect of any boy brought up in a reformatory ship.”

No wonder the Navy does not take, or rather get, many boys from these industrial ships when, putting aside all other considerations, the Admiralty only allow £25 for a boy who has cost from £45 to £50 for the “two years' training.”

"Since the establishment of the *Cumberland* in June, 1869, 1,035 boys have been admitted, and 661 have left.

"The communications kept up with, and relative to the boys, for some years after leaving the *Cumberland*, show the following results as nearly as can be ascertained. Of those discharged in 1872-3-4, 266 are known to be doing well, 4 have been conducting themselves indifferently, 8 have been convicted of crime, and 20 have died, 2 of these latter having left the ship in bad health. Two hundred and seventeen of the boys discharged during these three years were sent to sea."

Supposing the remainder, of whom no accounts have as yet been received, to have conducted themselves in a similar manner, we see in this ship alone what a number of destitute children saved from misery and crime have become useful members of society, whose conduct, I must add, will compare not unfavourably with a similar number of youths of almost any other class in the community.

On this point the President of the *Cumberland*, Mr. John Burns, remarks with great force:—

"I think that the advantages of training-ships cannot be exaggerated, both upon philanthropic and national grounds. I do not think that there is the slightest danger of philanthropy and benevolence being overdone in this country, and the training-ships which within late years have been instituted have formed at once objects for charitable effort and receptacles for boys who, from many reasons, prefer a sea life to any occupation upon land; but upon the present occasion I would rather urge the necessity for training-ships *from a national point of view*, and it would be needless for me to attempt to prove the need we have for such institutions, did I not state the fact that thorough-bred seamen are upon the decrease, and must be recruited from exceptional modes of culture. In these days we hear a great deal about unseaworthy ships, and even unseaworthy shipowners; but absolutely nothing is being done to prevent unseaworthy seamen going to sea."

Besides these ten industrial school-ships, of which three—the *Akbar*, *Clarence*, and *Cornwall*—are purely reformatory, there are eight other vessels devoted to the training of youths for the sea, chiefly for the Merchant Service. These consist of the *Conway* frigate, moored on the Mersey, and the *Worcester*,* stationed on the Thames, off Greenhithe, Kent. Neither of these, however, receive any aid from Government, nor can they in any way be ranked with the industrial and reformatory school-ships; they are, in fact, well-conducted and excellent colleges, where the parents of youths, chiefly of the middle-class, pay from forty

* Arrangements have just been made to substitute for the *Worcester* a larger and much superior two-decked ship, the *Frederick William*.

to fifty guineas each per annum for their education and maintenance. I should like to see more of such schools established.

Two others, the *Chichester*, established 1866, and the *Indefatigable*, in 1865; the former stationed on the Thames, the latter on the Mersey, where from 400 to 450 boys, of the labouring classes, or sons and orphans of sailors, and other poor and destitute boys, are maintained and educated for seafaring pursuits, entirely by voluntary subscriptions. In 1874, another of these vessels, the *Arethusa*, now moored off Greenwich, was established for the benefit of homeless and destitute boys, not criminals; and she is also supported by voluntary contributions, bequests, and otherwise; none of these vessels receiving anything from Government beyond the use of the vessels.

Then we have the *Warspite*,* the pioneer training-ship, stationed off Woolwich, and established so far back as 1786, under the name of the "Marine Society," by a gentleman of great philanthropy. This excellent institution has been maintained throughout by bequests and voluntary subscriptions, receiving no aid from Government beyond, I believe, the gift of the vessel. Here all the boys are subjected to a strict medical examination before admission, and are engaged to serve wherever they may be sent, whether in the Royal Navy or Merchant Service. This valuable institution has sent, since its establishment, somewhere about 80,000 boys into the Royal Navy, 25,000 into the Merchant Service, and 8,700 into the Indian Navy. These boys are received between the age of 14 and 16, and remain, on the average, about nine months on board the vessel of the society, training for sea service; they leave in turn as soon as a certain course of education has been gone through.

There is likewise the *Gibraltar*, established in 1872, and now stationed at Belfast. This vessel, which may be classed under the head of industrial school-ships, is supported by an annual grant of £1,820 from the Paymaster-General, £910 raised by the Irish counties, and about £600 by voluntary subscriptions. About 250 boys are trained in the *Gibraltar* (she has accommodation for 350). They are received between the age of 10 and 14, and are generally retained until they are 16. They may be sent out on license any time after they have been 18 months on board, but cannot be kept on board after they are 16 years of age.

Besides these seventeen training-vessels, there is the model ship *Endeavour*, consisting of the deck and masts of a vessel fully brig-rigged, erected in connection with the Feltham Industrial School, Middlesex,

* The *Warspite* having recently been destroyed by fire, the Marine Society is about to fit up an old wooden line-of-battle ship, placed at the disposal of the society by the Admiralty. She will accommodate a great many more boys than the *Warspite*.

to which I shall presently refer ; and there are six large vessels stationed at the different naval ports, where from 2,500 to 8,000 boys are annually in course of training entirely for service as seamen in the Royal Navy. These are, however, altogether under the control of the Admiralty, the others to which I have referred being almost as entirely under the management of committees of private gentlemen, belonging to the different localities where the vessels are stationed ; subject only to certain regulations issued by the Board of Trade.

Although the inducements offered by the Admiralty are tempting to poor parents, as a boy on entry receives a gratuity of £5 for outfit, and £1 for bedding, the conditions on which he is entered are stringent. Originally he was received between the age of 14 and 15, provided he was the minimum height of 4 ft. 8 in., without shoes. In 1864, the conditions required that boys of 14½ to 15 should be of that height, and 4 ft. 10 in. in height if between the ages of 15 and 16. In 1868, the Admiralty declined to receive boys under 15 years of age, and required that between that age and 15½ they should be 4 ft. 10½ in. in height, and 29 in. round the chest ; if from 15½ to 16 years of age, 4 ft. 11½ in. in height ; and if from 16 to 16½ years of age, they were to be 5 ft. 1 in. in height, and 30 in. round the chest, with "his hands above his head, back to back, and counting aloud between 80 and 40 each minute in a steady manner." By a circular of the 4th August, 1875, every boy was required to be not merely of "robust frame, intelligent, of perfectly sound and healthy constitution, free from any physical defects or malformation, and not subject to fits," but also "able to read and write," the lowest test being that he should "read a passage of two ordinary lines of one syllable, and sign his name legibly." It was further required that—

"Every boy must bring with him a certificate of birth, or a declaration made by his parents or guardians, before a magistrate, to show that he is of proper age ; and also the consent in writing of his parents or guardians, or nearest relatives, if he be an orphan, to his entering the Navy and engaging to serve until he shall have completed ten years continuous service from the age of 18."

The last Admiralty Circular before me, that of 12th January, 1876, allows boys who can neither read nor write to enter training-ships for service in Her Majesty's vessels of war, but retains all the other conditions, and the permanent one that "*boys are not to be received from reformatories or prisons.*" However eligible in other respects, they cannot be admitted to the service if they have once been convicted of the crime of any description.

This regulation is of long standing, and, no doubt, when originally adopted, considering the experience which former Boards of Admiralty

had of the "sweepings of our gaols," who on every emergency were drafted into the service of the Navy, was thought to be a precautionary, if not altogether a necessary regulation. As there is, however, a vast difference between the homeless boy who has committed some trivial crime, and the confirmed and hardened criminal, I think this long standing rule might be reconsidered to advantage. In the case of the latter, there is little hope of reform; but there is every hope for the former, as I have shown by the results of the destitute boys received on board of the *Cumberland* and other training-ships.

I shall now furnish a more striking instance in favour of the views I venture to recommend to the Admiralty; and the training-vessel *Endeavour* is a remarkable case in point.

The *Endeavour*, as I have already explained, is a model vessel, erected on the grounds of the Feltham Institution, within four miles of where I reside. I have more than once had the pleasure of inspecting the 150 boys who are there under drill for sea service. This excellent institution, which has accommodation for 800 boys, although the number seldom exceeds 750, is supported by a rate levied on the county of Middlesex, yielding annually about £9,000, and contributions received from the Treasury of £6,800, and from the London School Board of £1,600. It is under the control of the magistrates of the county who appoint from their number a Committee of Visitors, whose chairman, the superintendent, Captain Rowland Brookes, a gentleman peculiarly suited for the responsible office he fills, and the chaplain, practically manage, with marked ability, the institution.*

The Middlesex Industrial School, when established in 1859, under a Local Act 17 and 18 Vict., c. 169, was practically meant to be a prison for the vagrant boys of Middlesex, especially of London, who had been convicted of crime rather than for the purpose of a school; but the number of *convicted* boys now consists of only one-seventh of the whole, the remaining six-sevenths being youths sent under the power of the Industrial Schools Act, which provides for detention without conviction, while a large proportion of the present inmates are simply *truant* children sent at the instance of the London School Board, because their parents cannot control them and make them go to school. Consequently, the institution is no longer a prison, but a reformatory and compulsory school as is shown by the fact that its inmates, though allowed great freedom in their movements, seldom desert—I might say almost never, except when enticed away by, or through the instrumentality of, their depraved parents or others. The boys are received at the age of 10, and main-

* See Annual Report of the Committee of Visitors of the Industrial School at Feltham, 1876.

tained until they are 16, but not later,* when they have learned some branch of trade† and are fit to do for themselves.

Perhaps in no part of the world can there be found a more depraved class of boys—"street Arabs," as they have been appropriately called—than in the city of London. The Feltham Institution may, therefore, be said to receive, shelter, train and educate the very dregs of society, most of whom would soon be irretrievably steeped in crime, were they not thus saved from ruin and from becoming a nuisance to society. It would be difficult to find anywhere else human nature at so low an ebb, morally, socially, and physically, as a large number of these homeless waifs present when first admitted to the Feltham Institution; yet mark the results—they are satisfactory in the extreme. During the three years, 1872 to 1874, inclusive, for which the last returns have been made up, there were 821 boys discharged and provided for,‡ of whom

* See Parliamentary Paper, "Training-Ships," ordered, on the motion of Captain Bedford Pim, R.N., to be printed 24th July, 1876.

† The following table, from the Report of the Committee, shows the number of boys instructed in trades, &c., during the year ending 31st December, 1875:—

TRADES, &c.	1st Quarter ending 31st March.	2nd Quarter ending 30th June.	3rd Quarter ending 30th September.	4th Quarter ending 31st December.
Tailors.....	34	36	34	35
Shoemakers	34	30	33	36
Carpenters	30	25	23	28
Painters	16	14	16	16
Smiths	8	6	7	7
Bricklayers.....	16	15	15	16
Engineers	8	7	8	9
Kitchen Boys.....	10	10	10	10
Bakers.....	7	8	7	9
Farm Boys	60	60	65	58
Brass Band Boys	36	36	36	36
Reed Band Boys	36	36	36	36
Nautical Class	100	104	100	101
Stocking Makers	—	—	4	8
Other Industrial Occupations	3	8	5	3
Total	398	395	399	408

‡ To employment or service ...	...	...	...	99
Placed under care of friends ...	...	...	...	165
Emigrated ...	...	...	...	121
Sent to sea or entered Royal Navy ...	...	...	...	285
Enlisted ...	...	...	...	115
Discharged on account of disease ...	...	...	...	12
Absconded, sentence expired ...	...	...	...	6

803

82·5 per cent. are doing well, 8 per cent. dead, doubtful, and unascertained, and 9·5 per cent. have been convicted of crime, and these in the majority of cases from the 165 who were "placed under the care of friends." Out of the 285 who entered the Navy and Merchant Service, 85·9 per cent. are known to be doing well, and 61·4 per cent. are still following the sea.*

Although I do not pretend to say that all the boys at Feltham School who are training for the sea are the best that could be obtained for the purposes of the Royal Navy, they should not be altogether ignored as they now are; and therefore I hope, before there is any further legislation on the question of manning the Navy, the First Lord of the Admiralty himself, with the First Sea-Lord, will visit that institution and judge for themselves as to the qualities of the youths and of their fitness in time to enrol them to aid in fighting our battles. If my Lords can only be convinced of that fact, as I have been, they may render a two-fold service to their country of no ordinary importance, both as regards the social question and the means of efficiently manning our ships of war in the hour of need. There are 128,000 boys (about an equal number of girls) receiving either indoor or outdoor relief from the various parishes and unions of this country;† and I see no reason why a considerable portion of these boys, or as many of them as we require, should not be made subservient to the purposes of the Royal Navy and Mercantile Marine.

It is true, especially in the case of the Feltham School, that many of the boys at that institution do not meet the physical requirements of the Admiralty; but why those who do should not be received, now that it has been shown that there is nothing to fear from their conduct, I am at a loss to understand, except that the Admiralty has not made itself sufficiently conversant with the present state of this truly important question.

Considering how these destitute boys have been brought up, the majority of them having no home, sleeping in the parks or on door-steps, or under arches or by brick-kilns, and seeking the means of existence by begging or picking up what they can get in the streets, gutters, and common-sewers, they are, as might be supposed, when

* If the system of "apprenticeship" was adopted for that of "boys," the percentage under the head of "following the sea" would be far in excess of 61·4, for, as it is now, a boy is free at the end of a voyage, and returning home to his friends, is often persuaded to follow some calling, and thus the expense of his special training is lost to the country.

† See an excellent pamphlet on "Training-Ships and Training-Schools," by Edmund E. Antrobus, Esq., who was chairman of the Feltham Industrial Schools, and who has given much attention to this subject. London: Stanton and Son, Strand. 1875.

admitted, in too many instances, a miserable-looking lot. But it is astonishing how they fill out when they have solid food, wholesome work, and proper places of rest. They may not all, at the limited age of 16, fulfil the requirements in height and breadth of the Admiralty, but there is every reason to suppose that if they continue to be well fed and cared for, they will in time make active and valuable seamen, unless they are diseased or there is about them an inherent weakness. I have seen many of the youths who were brought up at Feltham after they reached manhood, and I could not desire to see a more cleanly, active, muscular and respectable-looking class of young men, especially those who have continued to follow seafaring or other out-door pursuits. We do not require for the Royal Navy nor for the Merchant Service overgrown Herculean men, such as the Yorkshire navvies. What we want is intelligent, active, wiry fellows, who could creep into the muzzle of a gun if needs be, or unfurl the British ensign from the truck; and these are to be found from the sources I have named. Anything beyond 5 ft. 7 in. in height, or 12 stone in weight, only tends to make a sailor less agile, and therefore less useful on board ship. Above 16 stone, men are worthless for working or fighting; heavy-weights may carry the day in railway excavations or in charges at close quarters in a battle-field, but as a rule, they are in their persons an encumbrance at sea.

I have gone more into detail in regard to the Feltham institution than I should otherwise have done, were it not the case that the Admiralty have hitherto declined to receive from it *any* boys into the Royal Navy, except 35 since the institution was established, or 2 per annum, and these were received solely because they had displayed a taste for music, and were likely to become proficient bandsmen!!

The truth is, the Admiralty of to-day, as of old, are slow to change their established rules, and I fear do not sufficiently consider the progress made in our social position, nor the relative advantages of science, education, and activity as against bulk and weight.

W. S. LINDSAY.

(To be continued.)

THE ECCENTRICITIES OF BRITISH LEGISLATION AS TO MERCHANT SHIPPING.

To the Editor of the "Nautical Magazine."

DEAR SIR,—The Merchant Shipping Act, 1876, came into operation on 1st October, 1876, and for the first time the masters and the owners of foreign merchant vessels arriving in British ports will be subjected to pains and penalties under British law for acts which are permissible by the law of the flag under which their vessels are navigated. It is a startling inauguration of the new scheme of legislation *for the protection of the mariner*, which takes effect for the first time on Tuesday, under the 24th Section of the new Act, that the master of a foreign vessel who has safely conducted his vessel into a British port will be liable to punishment for navigating his vessel under conditions which are conformable to the law of his own country, have been proved by the result to have been consistent with the safety of all parties engaged in the voyage, and are advantageous to the trade of Great Britain itself; whilst the master of a British ship, who, under like conditions, has been unable to conduct his vessel in safety to a foreign port of destination, is to be allowed to enter a British port and to take his vessel out to sea again for the advantage of the trade of a foreign country, and is further exempted from all pains and penalties, notwithstanding that the result has shown that he is engaged in a voyage fraught with danger to all persons concerned in it. The original section of the Bill, as sent up from the House of Commons to the Lords, was open to grave objections of principle as regards the manner in which it proposed to deal with foreign vessels; but it was at least free from this monstrous inconsistency. It did not exempt the masters and the owners of British vessels encumbered with deck-loads, and compelled to seek refuge in British ports from their inability to keep the sea, from all pains and penalties, provided their cargoes are to be delivered in a foreign port; whilst the masters and owners of similar vessels, if they have kept the sea in perfect safety and brought their cargoes for delivery to a British port, are to be mulcted in heavy penalties. Of such legislation it may be well said, in the language of the Roman satirist:—

"Dat veniam corvis, vexat censura columbas."*

The purport of the 24th Section is that "if, after the first day of November, 1876, a British or foreign ship arrives between the last day

* "The crows escape, the doves are punished."

of October and the sixteenth of April in any year, at any port of the United Kingdom, from any port out of the United Kingdom, carrying as deck cargo any wood goods coming within the following descriptions the master of the ship, and also the owner, if he is privy to the offence, shall be liable to a penalty not exceeding five pounds for every hundred cubic feet of wood goods carried in contravention of this section, and such penalty may be recovered by action or on indictment, or to an amount not exceeding one hundred pounds (whatever may be the maximum penalty recoverable), on summary conviction." It is impossible on reading the above enactment not to arrive at the conclusion that the original draft had in contemplation only the owners of British ships, who, if such deck cargoes were forbidden by British law to be put on board of British ships, might be taken to have committed an offence in consenting to their being put on board properly cognisable by British tribunals, although that offence may have been committed by them in a foreign country; but for the British Legislature to enact that the foreign owner of a foreign ship, if he is consenting in a foreign court to his vessel taking on board a deck cargo to be delivered in a British port, shall be liable to be indicted if he comes within the jurisdiction of a British tribunal, notwithstanding his conduct may have been in conformity with the law of his own country, is to press the doctrine of the omnipotence of Parliament to an extent which is not only unreasonable, but, as between nations, may be fraught with the most disastrous consequences. Further, as regards the masters and the owners of British ships, the new Statute aims at punishing those only who bring their ships into port in safety, in which case the presumption will be that their vessels were laden with due regard to the safety of ship and cargo; whilst as regards the masters and the owners of vessels which fail to bring their cargoes safely into port, no provision is made for their punishment, although we fear presumption will be that such vessels were improperly laden, and even lost from over-loading.

Looking further at the special words of the 24th Section of the Statute, as amended by the House of Lords, it is difficult for us to arrive at any other conclusion than that the Lords intended simply to give support to the Canadian Legislature by punishing at the port of arrival all masters of vessels who should bring into a British port, as deck cargo, timber taken on board contrary to the last Canadian Statute. The specifications of the timbers are identical in both Statutes; and the specifications of the times of arrival in British ports are made to correspond with the times of departure from Canadian ports. Yet the Lords, in their hasty legislation, have adopted words which apply to the Baltic trade where there are no corresponding shipping laws prohibiting such deck-loads to be taken on board after the 1st of October. On the contrary, there are

vessels engaged in the Baltic timber trade which are built expressly to carry deck-loads. In the year 1878, out of 1,622 vessels which left the port of Dantzic, 73 per cent. were laden with timber, and many of these were so constructed that, without a deck-load, they would have been too high out of the water for their perfect safety—in fact, they were safer to navigate with deck-loads than without them. The subject of the legislation on which Parliament is embarked, as regards foreign shipping, is too vast and too serious to be disposed of in a few observations. It may be sufficient to point out that if the British Parliament can rightfully require the masters of foreign vessels to conform to British regulations as to the stowage of their cargo, from considerations of due protection of the mariner, the German Parliament would be rightfully entitled to legislate for the protection of the mariner from their own point of view, and to impose heavy penalties upon the masters and the owners of British steam vessels which bring cargo into German ports for delivery, and have not the boilers of their vessels fitted up in the manner required by the German law for the protection of the passengers and mariners.

It would appear from the *Hansa*, of Hamburg, that the merchants of Germany have petitioned the Imperial Chancellor to call the attention of the British Government to the unfriendly character of the recent legislation of the British Parliament.

I hope to be able to resume the consideration of this subject on a future occasion.

Yours faithfully,

TRAVERS TWISS.

Brussels, 12th October, 1876.

STRANDING OF IRON SHIPS AND ERRORS OF COMPASSES.

(Communicated.)

IN many cases of stranding, the loss of a ship has been attributed to an *unknown* error of the compass. If the cause of this ignorance can be explained, and if it can be shown that with ordinary precaution compass errors should never be unknown, another step will have been made towards the prevention of a frequent and inexcusable casualty.

Many masters of iron vessels, especially of small steamers, trust almost entirely to the deviation cards supplied by the compass adjuster. Few of them take the trouble to test the accuracy of these cards, and

fewer still compile a table of errors for themselves, or record their observations from time to time for future guidance.

The deviation cards supplied by the adjuster, even when carefully made, are only to be depended on in the vicinity where the adjustment was made. With a change of place and of the magnetic dip, as well as with any considerable heel of the vessel, the deviation in these cards is sure to be more or less incorrect, and this change is always greatest in compasses adjusted with magnets. Moreover, in compasses corrected by magnets the error will vary with time, under precisely similar circumstances; whereas, under such circumstances, the errors of an uncorrected compass remain constant. For this reason the standard compass of every iron ship should never be adjusted by magnets, but the needle left to be influenced by the attraction of the hull alone. The steering compass may be advantageously adjusted for pilots' use before leaving the land.

On the first fine day after leaving port, a vessel may easily be turned round and the error of her standard compass found by azimuth on all points, and the same recorded in a compass book. This should be repeated on arriving at any considerable distance from that spot, or before, if any change is discovered by the observations made on the course steered, which observations should be taken daily and on every opportunity. The loss of time in turning a ship round would not exceed an hour, and this would be fully made up for by the increased confidence which could be placed in the accuracy of the ship's position. Every shipmaster is well aware of the fact that doubt entails either delay or danger, probably both.

Every vessel is required by law to carry an official log, and the master is required to record therein many occurrences of far less importance to her safety than is a correct record of the errors of her compass. I would suggest, therefore, that every iron vessel should be supplied with a compass book, on a form sanctioned by the Board of Trade, and in it all observations showing the errors of the compass should from time to time be recorded. If a master neglected to do this, and a casualty occurred from supposed error of compass, it would be *prima facie* evidence of default. Every iron vessel should also have a standard compass, fixed in some spot where the local attraction is least, and conveniently placed for taking observations by bearings of land or the heavenly bodies, and fitted with proper sight-vanes for that purpose. The course should be always set by this compass, and this course be the one recorded in the log. I subjoin a form of record-book which has been used by me for many years, as well as by others. More than twenty years since, Stebbing, of Southampton, had this form printed, and a somewhat similar one is regularly supplied to and kept on board all the vessels

CORRECT MAGNETIC POSITION OF SHIP'S HEAD, N.E. by N. to N.E.

Date.	Hour.	Lat.	Long.	Description of Observation.	Ship's head by compass.	Observed variation.	Magnetic variation.	Compass error.	True position of ship's head.	Correct magnetic position of ship's head.	List.	Remarks.
1874. 9 Aug.	4 p.m.	6° N.	107° E.	Azim.	N. 31° E.	7° E.	2° E.	5° E.	N. 33° E.	N. 36° E.	None	Smooth water, ship steady.
28 Oct.	4 p.m.	37° N.	9 W.	Azim.	N. 38 E.	24 W. 22 W.	2 W.	2 W.	N. 14 E.	N. 36 E.	—	Rolling slightly.
3 Nov.	8 a.m.	Off S. Foreland		Bearings of Land	N. 40 E.	24 W. 24 W.	0 0	0 0	N. 16 E.	N. 40 E.	None	Steady.
1875. 7 Jan.	6 p.m.	15 N.	83 E.	Amp.	N. 32 E.	7 E.	2 E.	5 E.	N. 39 E.	N. 37 E.	None	Steady.
2 June	2 a.m.	41 N.	9 W.	Azim. *	N. 39 E.	21 W. 23 W.	2 W.	2 W.	N. 18 E.	N. 37 E.	None	Steady.
4 Aug.	5 p.m.	16 N.	83 E.	Azim.	N. 34 E.	6 E.	1 E.	5 E.	N. 40 E.	N. 39 E.	None	Rolling.
5 Oct.	6 p.m.	42 N.	10 W.	Amp.	N. 34 E.	23 W. 23 W.	0 0	0 0	N. 11 E.	N. 34 E.	Slight starb'd.	Slight motion.
26 Nov.	8 a.m.	15 N.	83 E.	Azim.	N. 39 E.	5 E.	1 E.	4 E.	N. 44 E.	N. 43 E.	None	Steady.
1876. 12 March	7 a.m.	7 N.	82 E.	Amp.	N. 40 E.	6 E.	1 E.	5 E.	N. 46 E.	N. 45 E.	None	Steady.
12 May	5 p.m.	46 N.	8 W.	Azim.	N. 36 E.	19 W. 25 W.	6 E.	6 E.	N. 17 E.	N. 42 E.	10° to starb'd.	Heavy sea, much motion.

of the Peninsula and Oriental Company. Many first-class steamers also, I believe, have something of the same description.

The assistance given by having this record of the compass errors at various intervals along a vessel's route is very great, as, although it in no way lessens the importance of constantly taking the correctness of the course steered by observation (on the contrary, it rather induces to a habit of more frequent and accurate observation), it often happens that observations are unattainable on a change of course.

It has been suggested to me that, as the errors of a compass not adjusted would sometimes amount to points, many masters would be puzzled to apply the corrections. This may be; but if so, I submit that such masters ought not to hold certificates of competency to navigate iron ships. There is no lack of efficient masters to whom this regular attention to the compass would be as easy as the daily pricking off the ship's position on the chart. The bulk of our masters are now of a much superior education to those of the last generation; and it need be so, for the increased speed of modern ships, their size and number afloat, all require far greater vigilance and capacity to navigate them safely than the old-fashioned grope-your-way system is equal to.

In the subjoined form a separate page is allotted for each point of the compass, which readily enables one to turn to the page and find the error on the correct magnetic course desired to steer, as found by observation on a previous occasion in the same vicinity.

I may add that in no instance I can call to mind have I found the error of a standard compass (uncorrected by magnets) differ from that recorded on a former occasion in the same place. This experience is not confined to one or two ships, but ranges over several voyages in nine iron steamships and one iron sailing ship, and all on distant foreign voyages.


W. P.

THE INTERNATIONAL LAW CONGRESS AT BREMEN.

VARIOUS questions interesting to merchants and mariners came under discussion at Bremen, during the recent Congress of the Association for the Reform and Codification of the Law of Nations, amongst others, the subjects of General Average, and the existing International Rules for the Prevention of Collisions at Sea. Vigorous efforts have been made on three different occasions to establish throughout Europe and on the continent of North America an uniform system of general average. The first International Congress was held in Glasgow, in 1860, under the presidency of Lord Brougham, assisted by Lord Neaves, in response to a circular addressed to all the maritime countries of Europe and the United States, and signed by the Chairman of Lloyd's, the Chairman of the London General Shipowners' Society, the Chairman of Lloyd's Salvage Association, and the Chairmen of the Chambers of Commerce and other mercantile bodies of Glasgow, Hull, Liverpool, and Bristol. The result was a Congress of Representatives from the Chambers of Commerce and underwriters of Amsterdam, Antwerp, Boston (U.S.), Bremen, Bristol, Copenhagen, Edinburgh, Glasgow, Hamburg, Liverpool, Mobile, New Orleans, and New York. A Committee of Lloyd's was also present, and the Salvage Associations of Liverpool and London were represented. The results of this Congress were embodied in a series of resolutions, known as the Glasgow Resolutions, which, after some delay, were drafted into a Bill, to be laid before Parliament; but, somehow or other, the Bill failed to give satisfaction, and the scheme has remained a dead letter. Two years afterwards, many of the foreign delegates who had attended the Glasgow Congress, assembled in London to meet their English colleagues, under the auspices of the Social Science Association, and endeavoured, under the presidency of Sir Travers Twiss, to mould into a more satisfactory form the clauses of the proposed Bill; but the Bill was found to be essentially unsuitable to secure the object in view, and the Congress separated after passing a resolution that a committee should be appointed to reconsider the whole subject, and to prepare another Bill to be submitted to Parliament. This committee, of which Mr. E. E. Wendt, of London, was chairman, and Mr. R. Lowndes, of Liverpool, secretary, comprised delegates from the United States, and from most of the great trading cities of Europe, and it assembled in York, in 1864, under the presidency of Sir Fitzroy Kelly, Q.C., now Lord Chief Baron of the Exchequer. The result of their deliberations was a body of resolutions, known as the York Rules, which differ in some points from the Glasgow Rules. Nothing, however, has been done to give legal effect to

these rules ; but the subject of the desirability of codifying the law of general average has been recognised both in France and in Italy ; and the Italian Government, in 1871, was disposed to countenance the discussion at a congress in Naples, of the question how far it was practicable to establish one uniform code of general average for all countries. The question has now been raised at Bremen, on the motion of Mr. Hack, of Hamburg, and a committee has been appointed, comprising several members of the Association who also took part in the York Congress, and who will prepare a report to be submitted to the Association at its next conference, which will be held at Antwerp in the month of August, 1877. Sir Travers Twiss has consented to act as chairman of the committee, and Mr. H. D. Jencken as secretary. It remains to be seen how far the Association will be able to supply what was wanting in the previous congresses—namely, an adequate machinery to give effect to its resolutions, and to commend them to the favourable attention of the various Legislatures. The other subject of maritime interest was the present unsatisfactory condition of the international rules for the prevention of collisions at sea, having regard more especially to the experiments lately made in the turning of screw steamers, a Report on which subject from a committee, consisting of Sir H. T. Simson, Mr. J. R. Napier, Mr. W. Froude, and Professor Reynolds, was laid before the British Association at its last meeting at Glasgow. It appears from this Report that in the case of screw-steamers, the reversing of the screws very much diminishes their steering power and reverses what little it leaves, so that when a collision is imminent, to reverse the screw and use the rudder as directed by the steering rules, as if the ship would answer her helm in the usual manner, is a certain way of bringing about the collision which it is sought to avoid. It is, therefore, highly important that the effect of the reversal of the screw should be recognised in the Law Courts, otherwise judgment may go against the captain of a ship who has ported his helm to bring his ship's head round to port with the screw reversed, although by so doing he has the best chance of avoiding a collision. After some discussion, a resolution to this effect was adopted, "That the present international rules for the prevention of collisions at sea are in an unsatisfactory condition, and that it is desirable that the Governments should concert further measures to bring them into a more satisfactory state." The further consideration of the subject of collisions at sea was adjourned to the next congress.

ON THE CULTURE AND MENTAL RESOURCES OF SAILORS.

AILORS, from the variety of the climes they visit, and the various populations of the world they come in contact with, have great opportunities of storing their minds with a variety of impressions which, though for want of culture, may be for a while somewhat blurred and confused, may become gradually brighter and clearer, more orderly, more entitled to the dignity of ideas; and it is much to be wished that this crude element of knowledge, so capable of being transmuted into wisdom this rough ore, or quartz, or sand, hiding within it the grains of gold should not be thrown away, but should pass through separating and refining processes and be made available for enjoyment and for use. The sailor is not generally a person of much culture and refinement, but he has some solidity of character, and is generally free from the prejudices and ignorant antipathies which are apt to characterise those who have seen nothing of life beyond their own small circle of experience. The sailor has seen too much of the world to believe that, on the whole, it is small and mean. He knows, on the contrary, that it is "a wide, wide world," large and magnificent, and multitudinous forms and incessant change. This globe of ours swimming tranquilly in the celestial æther, skimming along in its orbit among the stars like a heavenly ship in a heavenly sea, is a world of momentous interest both to the humanity that dwells therein and to the angels that "have charge concerning it" under the direction of the Supreme; and the sailor from the width and variety of his life, is one likely to be impressed with the thought of the universality of the Divine care. If endowed with any natural susceptibility, or disciplined even in a slight degree by thought, he is likely to perceive more readily than most men, the truth of Peter's observation, "Of a truth, I perceive that God is no respecter of persons. Of one blood hath He made all the nations of the earth." There is no race exclusively the favourites of Heaven. The highest sections of humanity have some defect which the lowest might supply; and even the brutish and the mean have some dormant capacity which only needs to be roused, some slight chink or opening in their tenement of clay through which sacred and beautiful influences may possibly steal in. Sailors from their movement and change of life are likely to know this, and hence, it is possible, they are, as a class, tolerably free from the insular prejudices and national conceits which are apt to disfigure the minds of those who "live at home at ease," or who live abroad and carry their prejudices with them. Up to the present time, however, the English sailor can hardly be said to have availed

himself very largely of his opportunities. He has not had previous preparation of mind. If we would have air we must open the windows; if we would have light we must draw up the blinds. So it is with human souls. We are all shrouded for a while with an earthy film, or, what Shakespeare calls, a "muddy vesture of decay," which answers the mysterious, but doubtless wise and necessary, purpose of shutting out for a while that intenser light and that loftier music which would simply overwhelm us if they came copiously and suddenly and in other ways than by gentle gradation. But it is the intention of Providence, and ought to be the aim of education, that this film or vesture—call it by whatever figurative name we will—should be countervailed by mental culture and spiritual influence, and gradually diminished in obstructive power. It should be the effort of a true culture to give some degree of transparency to things that were before opaque, to make openings here and there in the clouds of ignorance and passion and vaporous atmosphere of worldly things, so that glimpses of the heavenly blue above may now and then refresh the mental eyes, and ideas be obtained of that higher life which will add vigour, efficiency, and beauty to the lower life without suspending or hindering the due performance of its necessary functions and common-place duties. The "muddy vesture of decay" might by right culture be made less muddy, less obstructive, and varying quantities of light, love, power, beauty, and joy, might enter into our spirits just at the time when they ought to enter, and in just the degree. What is called instruction may, unfortunately, formalise a mind instead of opening it, fill it rather than enrich it, and give it more conceit than wisdom; but better views of education will ultimately prevail and correct the mistakes of mere pedantic teaching. By-and-by, in a purer condition of society, knowledge will upraise us *in* our spheres, not necessarily *out* of them; and the word "sphere" then will simply mean that orbit of duty which lies nearest and most obvious to be pursued, and will be utterly divested of those ideas of caste, of the conventionally high or the conventionally low, which now embitter our social relations and obliterate brotherly feeling from the hearts of men.

Some people sneer at the notion of any of the finer work of life—work of the heart and head, of the thoughts and affections—being pursued simultaneously with its coarser toils. We do not share in the opinion which generates this sneer, and we think it almost a wickedness and a cruelty to say to any whose outward place in the world may be low—"Your aspirations shall not be high." On the contrary, it is only by making them high and keeping them high that we perform with conscientiousness the work that seems low. We, of course, do not expect sailors in general to have either the time or the taste to give a printed literary form to their observation and experience. We

do not expect from them any artistic description of foreign scenery, any elaborate analysis of foreign character, any criticism of foreign institutions, social, political or religious; but we do hope for and reasonably expect a gradual quickening of all the observant powers in them, and in all other sections of humanity who have hitherto seemed intellectually dull and torpid; and we believe that those things, common or uncommon, which inevitably come within the range of a sailor's view and a sailor's experience might also excite his interest, draw out his powers of thought and observation and sometimes even his latent genius, without in any way deteriorating his humbler and more professional qualities or retarding the performance of his practical duties. The forms of boats, for example, in foreign countries, and the foreign modes of managing them would suggest a great deal to an intelligent sailor, give him many a hint worth acceptance—lead his fancies in the paths of many interesting associations and perhaps awaken faculties that invent and improve and lead to the adoption of many useful changes at home. That little, wet, tumbling, tossing thing which seems as if it could never live on the surface of a sea and yet very rarely indeed goes to the bottom, with which the native boatmen of Madras cut through the surf on that foaming shore, the Indian canoe, the jolly boat, the gig, the light skiff, the long wherry, the heavy yawl, the white-winged boats on the Italian and Swiss lakes, and the curious gondolas of Venice, on the Mole and the Grand Canal, are all immensely interesting to observe and all suggestive of something curious as to construction and admirable as to management and skill. In a recent tour through the north of Italy and the lake districts we had occasion to observe the remarkable ease with which rowers can propel their boats in both directions successively without turning round, either by pushing the oar away from his person or by pulling it in towards him. It seemed as if it mattered not to them which method they used: there was grace, power, precision, and swiftness in either direction; and though doubtless there are good reasons founded on the form of the boat, the state of the weather, the direction of local currents, &c., why one method should, on certain occasions, be adopted rather than another, there must obviously be some advantage in the facility to use both. Sailors going as far up the Adriatic as Venice cannot fail to have observed the gondola as managed by Italian boatmen. The gondolier, in a standing position, and by means of a single oar, can glide swiftly along the most intricate canals, going in and out of transverse channels at right angular bends without even so much as grazing the innumerable other gondolas he meets on his way. The very appearance too of these boats is interesting. They are generally black in colour, with black awnings and black cushions and have therefore a somewhat funereal appearance which contrasts oddly with the generally gay purposes for which they

are used. But this sombreness is gradually passing away, and glowing colours may occasionally be seen. The prow curves high out of the water like a swan's neck, and is headed by a gleaming metallic blade like an axe. We remember seeing by night one of these solemn craft gliding down in the darkness along the Grand Canal. A lamp in some part of the boat shed a grim, glittering light on the blade at the prow, and as one watched its motion over the dark, still water there floated into the mind, on waves of memory, an old refrain from a once popular game of childhood—"Here comes a candle to light you to bed, and here comes a chopper to chop off your head." And truly, in the olden time, then vividly brought to mind by the contiguity of the Doge's palace and the neighbouring dungeons across the Bridge of Sighs, the connection between the bed and the grave, the candle that lighted and the axe that put out the light, was very close indeed, and the interval between one and the other very short.

Boat architecture and boat management are among the things that an observant sailor should look at attentively as matters connected with his calling and coming immediately under his eye; and by looking he will certainly discover that every maritime people have in this small matter their special excellencies, and that even when there is great rudeness in the invention and the means, there is admirable skill in the use and application. Boating, as an amusement, is now pretty generally followed by all people who live near seas or lakes or streams; but boating as a discipline for higher and sterner ends than mere amusement, as a means of drawing out the qualities of self-possession, courage, patience, and power, as training a man to grapple with the mighty forces of Nature under difficulties and dangers, is not pursued. It would be a novel and startling thing if our Oxford and Cambridge crews were to choose a rough sea instead of a smooth river for the scene of their annual competition. If instead of light skiffs they had strong boats capable of bearing the strain of wind and wave; if instead of hoping for a fine day they were deliberately to choose bad weather, with rain-clouds scudding across the sky, and the wind blowing a great gun or two; if instead of neat jerseys and gay ribbons they were to wear pea-jackets and sou'-westers, the scene would be novel indeed and the spectators composed of a far different class from those who now line the river banks on the occasion of the great annual struggle. The rough sea competition would not be so pretty, so bright, so "jolly" as the river one; but we venture to think that it would exercise virtues and develope powers, both mental and physical, that would in the end subserve the interests of humanity more usefully and more grandly. In such a competition the British sailor would in all probability greatly surpass the University amateurs; but these latter should be encouraged to enter the lists if they were so

disposed ; for there is pith and pluck and generous feeling in these young men, and the skill which they put forth for their own excitement and the amusement of multitudes might, differently applied and under different training, be made subservient to purposes noble, generous, and humane. Boating in rough water and under a rough wind, so far from being repellant to a healthy, hardy sailor, would probably be counted among his enjoyments, and he would often be as willing to pursue it as an amusement in his leisure hours as prompt to do it under command in hours of professional duty.

There is a multitude of other things which come very close to the professional experience of a sailor, things that are seen by his eyes, touched by his hands, and felt by him almost every day. Among these are the forms of moles, quays, docks, piers, commercial architecture and invention generally as shown in the construction of warehouses, and in the appliances for loading and unloading cargo. These things abroad are generally on a much smaller scale than in England ; but in some few points of convenience and ingenuity, superiority may occasionally be found on the foreigner's side. The points upon which foreigners excel ourselves, if not multitudinous and of primary importance, are at any rate sufficiently numerous to command our respectful attention. They may be found in all the departments of civilization. The scholar may discern them in foreign literature, the artist in foreign art, the lawyer in foreign principles and habits of jurisprudence, the mechanic in the application of ingenuities to the domestic conveniences of life, and the observer of costume and beauty and grace and personal form may see in the streets and houses of a foreign land much that he would like to see at home but fails to find there. A sensible sailor, like other sensible men, will not trouble himself with the toilet of women in details. Such matters are generally beyond the scope of a man's interest and inquiry ; but the traveller to foreign lands cannot fail to be struck by certain qualities of taste and propriety in relation to attire, in which the women show a decided superiority over the women of England. The sailor, like other men, should use his opportunities to observe this matter, for though it is a very small thing in itself it points to a defect of character which is not small, and if in admiration of the neatness, the simplicity, the economy of attire amongst women of the humbler classes abroad, the English sailor can induce his bonnie lassie at home to abate a little of the extravagance and glare of her holiday finery, why something will be gained even in that small matter for the good of the community. Since improvement in taste does not seem likely to originate among those that are rich, one may expect, or at least hope, that one day it may make a beginning among those that are poor. Since the people that are called " high " will not set a good example in this matter,

let us see if there be any chance of finding it among those that are called "low."

Reading should be one of the resources of the sailor in his leisure hours, and it is much to be desired that the literature supplied to him should be of a healthy, happy, cheerful, inspiring tone, literature that has emanated from bright and manly minds and is fitted to make bright and manly the minds that read, literature that speaks with the voice of a sweet, natural goodness and not with the whine of a conventional piety. The books that are too frequently supplied to the sailor by his well-meaning but not very judicious friends are twaddling tracts, more fitted to inculcate certain questionable dogmas of theology than to enkindle a spirit of religion—tracts that are dull and insipid in the happiness they promise or simply horrible in the miseries they threaten. Let the sailor have a literature that does not sour the heart in the endeavour to sanctify it, which does not shroud solemnity with gloom. Let him have books that impart solid information and pleasant entertainment, books of a healthy, manly, moral tone, that teach a man to keep his honour bright, his integrity firm, his mind open and truthful, that lift him up with conscious dignity among men and bow him humbly before God. Let the sailor feel that his whole life is a sacred responsibility, but that even mirth and merriment and innocent fun are compatible with a sacred tendency of the general mind. "Dost thou think, because thou art virtuous, there shall be no more cakes and ale?" Certainly not! let us have the virtue by all means, and the cakes and ale as well. We would, for the most part, leave the selection of the ship's library to the sailors' own taste and liking, for we do not quite like the practice of those self-elected censors in the literary world who suppose themselves qualified to tell poor people what books they should read and what they should not. Since tares and wheat grow together in the literary fields, we suppose it impossible to avoid reaping a little of both, and we must leave the subsequent separation of the good from the bad to individual judgment and right feeling.

One would be very glad to include music and singing among the resources of a sailor. Already the sound of a fiddle is not infrequently heard in the forecabin; but as far as our small experience goes, the nautical performances on that instrument have been generally rather excruciating. Sailors have very often excellent voices, and might probably produce pleasing results in part-singing; but of their violin playing we confess to have very little hope. Nevertheless if by fiddling sailors can amuse one another, let them fiddle away by all means and dance too if they like it.

The schoolmaster being now fairly abroad, on board ship as well as other places, we may fairly expect in a generation or two among sailors generally an elementary knowledge of such sciences as are related to

their profession, such as astronomy, mechanics, navigation, drawing, &c., and in this way openings will be made to admit light into the details of a sailor's duty, to upraise the humblest of them into dignity, to dissipate monotony by variety of thought, and substitute refreshing interest for wearisome ennui. Of course there are times when a sailor's duties will be rough, rude, and stormy like the raging elements around him. During the stress of a gale and while a ship is being navigated through difficult and narrow channels, a sailor's first and all-absorbing duty is to watch the hand and listen to the voice of the officer in command and unhesitatingly obey. Work, hard, coarse, difficult, dangerous work, becomes then the order of the day, and leisure thoughts and leisure fancies, and things gentle and refined must be postponed for leisure hours. But even in darkness and in storm, amidst the fury of the gale and the wild sweep of the threatening waves, amidst thunders and lightnings, terrors from the sky and terrors from the deep, it is wonderful how a serene, devout, intelligent, earnest mind, previously disciplined by its studies and reflections, may take in a deep imbibing of beauty and consolation. It mentally sees a latitude of calm above the circle of the storm, and inwardly hears amidst the deafening clamours of excited Nature the sweet whisper—"It is I, be not afraid!" There is no reason in the nature of things why even the most illiterate of sailors should not, by-and-by, and after much training, attain to this spiritual susceptibility, this capacity to take in grand ideas and holy consolations even in the midst of life's sternest trials and darkest terrors.


In the case of the sailor, from the firmness and health of his temperament, one may reasonably expect that when intellectual culture and refinement shall have added to his resources, they will not in any way diminish his vigour and strength, they will not generate a nervous irritability, or a selfish fastidiousness, or a ridiculous feeling of self-importance—qualities that too often make people of some genius and great talents extremely disagreeable personally, and of very little use in the world. A healthfully cultivated mind with a healthfully well-organised body ever ready to act as the medium of its outward expression, ever ready to do in the concrete form of duty what conscience has suggested in the form of principle,—that is the combination which helps the world to the height and beauty of civilisation, and the humblest as well as the highest, the sailor before the mast, and the admiral on the quarter-deck, may help humanity to attain unto it.

E. A.

ON SEA AND LAND.—RECOLLECTIONS OF A SAILOR.
THE CRUISE OF THE "ARETHUSA," &c., &c.

CHAPTER VII.

I VISIT LISBON, AND SEE THE LISBOANS.

 HERE are few cities which present a more imposing appearance than Lisbon, as I first saw it from the deck of the *Arethusa*, as she entered the once celebrated, and still beautiful, but then comparatively lifeless Tagus. Erected upon the seven hills which line the right bank of the river, and about nine miles from its entrance, Lisbon, on account of its site, has been considered not unlike Rome; but in no other respect does it resemble the once proud capital of the ancient world, except that there are in its immediate vicinity various very large buildings, chiefly monasteries and nunneries, crumbling to decay.

With its origin, lost in an antiquity so remote as to be assigned to the period of the wanderings by sea and land of the famous *Ulysses*; and with a name said to have been derived from an Ithacan king almost as famous, the Lisboaans boast of an ancestry who carried on a considerable commercial intercourse with distant nations for more than a thousand years before the Christian era.

Surrounded, as all records before the dawn of history necessarily are, with a great deal of romance, I shall not invite my readers to follow me in any inquiry as to the state of Lisbon and its commerce in the time of *Ulysses*; but that the city was successively held by the Phœnicians, Carthaginians, and Romans, and that Julius Cæsar bestowed upon it the rights of a *municipium*, besides other important privileges, are matters of authentic history; while everybody knows, or ought to know, that it was overrun by the Goths under Theodoric, that it passed from him to the Arabs, was conquered by the Spaniards, again reconquered by the Arabs, and that, in 1147, A.D., Alphonsa, first King of Portugal, besieged Lisbon, and captured it, after a terrible massacre of the Moors, in which, by the way, he was assisted by an army of English Christian crusaders on their passage to the Holy Land.

Nor need I remind my readers that it was from Lisbon Vasco de Gama sailed on his perilous voyage to rediscover India, by way of the Cape of Good Hope, and Christianise its people by the conquest of their lands, and the perpetration of the most horrible acts of rapine, plunder, and bloodshed: or that about 120 years ago (no doubt by way of retribution) this renowned capital was itself reduced to almost a heap of ruins by an earthquake, which swallowed up between 30,000 and 40,000 of its

inhabitants, laying waste many of their finest buildings, including the palatial dwellings of its traders with India, whose people Vasco de Gama had (having gone the wrong way to work) failed to Christianise.

I was greatly struck, as all other travellers have been, with the appearance of Lisbon, when viewed from the Tagus; nor was I less surprised with the magnificence of many of its public buildings erected since the earthquake, especially with the *Praca de Commercio*, better known to British sailors as Black Horse Square, from the large bronze equestrian statue of Joseph I., which stands in its centre. Here I landed with Captain Roughhead amidst a number of howling, yelling, bare-legged fellows, who would insist on offering their services to convey us to the office of the consignees of our ship.

I have said that the city was magnificent in appearance, most of the buildings far surpassing in size and grandeur anything I had seen Glasgow, the Tontine not excepted; but I never trudged through so much dirt and filth as the streets presented which led to the place of business we were in search of, a very long way distant from where we landed.

OUR SKIPPER REQUIRES REFRESHMENT.

I suppose the streets of Lisbon are a great deal cleaner now, but then they seemed to be the only receptacle for all the ashes, and something worse, of all the houses on our line of march. Even our skipper, whose olfactory nerves were not the most sensitive, remarked that the smell and the heat were so overpowering that he felt they would overcome him unless he had a glass of brandy-and-water. We therefore stumbled into a place which had the appearance of a refreshment house—at least, it was one where liquor was sold, and, having seated ourselves in an adjoining room, he called for a tumbler of his favourite beverage.

The waiter was long in supplying his wants, so long, indeed, that our skipper commenced to swear at our guide—a very foolish operation indeed, for the guide knew as little about the English language as we did of the Portuguese, although he understood we were waiting for liquor of some sort: and expecting to participate, he was ready to do what he could to expedite its delivery. When, however, he was about to perform this charitable mission, the waiter walked into the room with a tray, on which there stood a lighted candle, and presented it with a polite bow to Captain Roughhead.

“Lor’ bless me, what di’s the chiel mean?” exclaimed our skipper, looking at the waiter with intense astonishment as he held before him the tray and the candle. “Brandy! man—brandy-and-water; that’s what I want, or I’ll gang aff in a faint wi’ this awfu’ heat;” and he certainly looked as if he would have done so, for the perspiration streamed

in torrents from his forehead. "Gie me the brandy, mon, and gin ye hae nae water, for by yier dirty streets ye seem to be scarce o't, I'll hae so'thing else to mix wi' it."

But the waiter only bowed, looking with as great amazement at our skipper's antics as he had done at the tray and its contents. At last, with the assistance of our guide, we made him understand that it was not a light, but something to drink that we required, the mistake having arisen from the word light in Portuguese sounding, as I was afterwards informed, not unlike brandy in English.

Having quenched his thirst with a very stiff "caulker," supplying the guide with another almost as stiff, and having evidently satisfied the demands of the waiter, we renewed our walk through still more filthy lanes until we reached the offices of the consignees, one of whom spoke English fluently.

The house to whom the *Arethusa* was consigned had done a good deal of business with our countrymen during the Peninsular War—a war, by the way, which, whatever may have been its results in other respects, had given a considerable impetus to the previously decaying trade of Lisbon. This firm was one of the leading mercantile houses in that city, and having been agents to most of the British transports, and many of the officers under Wellington, its members had reaped a rich harvest from the agency of these vessels and the supply of the different army messes.

Although the course of business had now changed and many of their former customers lay buried in the pretty churchyard, the tall trees of which surround the English chapel, their friends remained in England, and through them our consignees still carried on a lucrative business in sending home the wines and fruits of Portugal, and in supplying the Lisboans with the manufactures of Great Britain.

As the fish, oil, and other articles constituting the cargo of the *Arethusa* were in good demand, and as our consignees perceived that their sale would yield them a very respectable commission, Captain Roughhead received a hearty welcome—more so than is usually afforded to the skippers of small vessels by the consignees of great mercantile firms. Indeed, the leading partner invited him to dine at his house at Balem, and, under the impression that I was the skipper's son, he expressed a wish for me to accompany him; but as Captain Roughhead was not accustomed to mingle in fashionable society, nor accept invitations to dinner parties; and as he doubted, as well he might, if our attire was altogether adapted for such occasions, he, in as polite a manner as his awkward gait would admit, declined the invitation, at the same time remarking that "he and Tommy wu'd be verra glad to see their orange-trees and gardens ony Sunday, when it wu'd be quite convenient for the

consignee and his family to receive them," an offer which was at once met by an invitation to luncheon for the following Sunday.

PORTUGUESE CUSTOMS AND OFFICIALS.

When the *Arethusa* was moored at the usual place of discharge in the Tagus, off the Customs in Black Horse Square, and duly entered, we commenced to discharge our cargo in native boats, by which it was conveyed to the Custom House quay.

In the discharge, extraordinary caution appeared to be exercised by the officials that no portion of the cargo should be landed unless it paid duty at this official landing-place; nevertheless, a good many small articles were despatched from the *Arethusa* which did not go nigh the Custom House. Sometimes a millrea (equivalent to about 4s. sterling) prevented the protector of the revenue placed on board from seeing it if the article was small; but at other times both eyes required to be closed with millreas when it was desirable to land bulkier articles by other means than the Custom House boats.

Portuguese officials are so very clear-sighted, and the atmosphere of Lisbon is so very brilliant, that there were occasions when two, or even three millreas over each eye did not prevent them from seeing, and when gold, which did not appear too opaque in its nature, was necessary to close the eyes of the guardians of their country's revenue. Copper was of no use as a non-conductor of light; and these honest men were much too temperate in their habits to be tempted to neglect their duty by a glass or two of grog, as some of our Custom House officers were said to have been a long time ago, when duties were as high in England as they were, and still are, in all the Portuguese ports.

However, all this was for the benefit of at least one portion of the community. Although the practice prevented Portuguese subjects at large from deriving the benefit of the Customs' receipts on many articles subject to very high duties, they winked at it. As the officials were a large and very influential body of men, who served their country for very low salaries, and as the practice prevailed in almost every branch of the public service, they, from their political influence, were enabled to effectually resist any attempt to reduce the tariff; any reduction, they patriotically argued, could only be for the benefit of foreign importers. Free trade, in their judgment, meant merely free supplies of goods from other countries to ruin their own manufacturers; and how, they enquired, "could any reduction in the duties increase the revenue when the revenue, as it was, never sufficed to meet the expenditure?"

Nor were the officials alone in their political opinions; they were backed by numerous others, especially by the leading merchants, many of whom were said to have made large fortunes by the illicit importation

of tobacco, in spite of the farming out of that article, and on numerous other foreign productions subject to exorbitant duties; besides, some of them were manufacturers, and reductions in the tariff on imports would have materially reduced their profits.

Simple-minded people might suppose that all large smuggling transactions would be easily discovered; but who was to reveal them in Portugal? Not the merchants themselves; nor the officers of Customs; nor the heads of departments; nor even the Cabinet Ministers; for many of them had their eyes covered to a greater or less extent. Nor could any one blame their prudence; for they all accepted office on salaries so low as to be insufficient to maintain them in their respective positions. Consequently they got what they could out of the State, or out of anybody who had dealings with Government. To expect to get business satisfactorily carried on with the Governments of such countries as Portugal, Spain, or Turkey, or with other foreign States, too numerous to mention, without a "perquisite," and sometimes a very costly one, was out of the question. Is it any easier now?

If you wish to make a road—especially a "tramway"—somebody's eyes must be closed to secure, in the first place, the concession; and if a railway, the number of eyes and mouths that require to be covered is legion. Should you have an account that is overdue, or any claim requiring settlement, about which the officials see any way open for prevarication, or any excuse for delay, or any reason for deductions, you must make up your mind to give one-fourth, or one-third, or one-half of the amount away, according to circumstances, before you can hope to receive the remainder. High duties on the one hand, and low-paid officials on the other, are the chief causes of all this fraud and corruption. It is not the men in authority who are so much to blame as the Government, by its unwise laws and stingy and pernicious practices.

Nor are the judges much better than the other officials; justice there is a thing of price; and how can we expect it to be otherwise when we know that those who dispense the law—the purity of which is the only sure foundation of a nation's prosperity and the freedom of its people—do not receive salaries superior to those of the upper grades of clerks in the counting-house of a second or third-class merchant.

When will these nations learn the wisdom of the good old maxim—"Do not muzzle the mouth of the ox which treadeth out its master's corn?" Under all such laws as those to which I have just referred, the honest masses of the people are impoverished, while the dishonest few grow rich; and even they do not always thrive on their ill-gotten wealth.

CHAPTER VIII.

CAPTAIN ROUGHHEAD VISITS BALEM, AND INSPECTS ITS CATHEDRAL.

The *Arcthusa* proceeded with the discharge of her cargo as rapidly as could be expected under a hot sun, lazy Customs' officials, and with crazy boats, and crazier boatmen to receive and convey it to the official wharf; and as our skipper had had a week of very hard work in pushing on the discharge of the cargo, he resolved to make a whole holiday of the Sunday; a portion of which he and I had been invited to spend at the mansion and in the gardens of our consignee at Balem.

We were up and dressed long before breakfast-time; the skipper in his Sunday suit, consisting of a blue coat with brass buttons and flat short tails; a broad-rimmed hat, with a wide ribbon for its band; a variegated shirt with stripes and flowers, and a white collar, secured in its upright position by a pink neck-tie. His waistcoat was a gorgeous affair of its kind, and his trousers, of yellow nankeen—though a somewhat tight fit for his corpulent body—were wide in the legs, and in other respects well adapted for a hot climate. I never saw our skipper, before or since, rigged in such gay and smart attire. I put on my best Sunday clothes, which, however, had got somewhat faded by the moisture from the sea, and long confinement in a small sea-chest. After we had had breakfast on board, Jack rowed us down the Tagus in the jolly-boat to Balem, where we landed at a small jetty just above the curious old fort, where all ships make their entries, and receive their clearances for sea.

As we had some hours to spare before luncheon time we strolled into Balem Cathedral, close by—that beautiful building so famous in history wherein Vasco de Gama with the King and Court in gorgeous array had offered such solemn prayers before his departure to discover the rich lands of Cathay. I had read all about it when at school: I could tell Captain Roughhead how that great but cruel navigator had there, in the presence of his Sovereign and a glittering throng of courtiers, invoked the Great Ruler of Nations to favour him on his mission of discovery, so that he might propagate amongst the people of the far and ever-envied East the Christian religion; and how, when he found these lands, and saw they contained much wealth, he forgot his Christianising mission, and plundered and persecuted the native princes, massacring many of the people in cold blood, all for the sake of obtaining possession of their lands and their “filthy lucre.”

But the skipper did not believe me. He could not understand how any man would on such a solemn occasion seek aid from the Ruler of the Destinies of Nations to civilise and Christianise when he only meant rapine and plunder and murder. “Na, na, Tommy, ye mun hae read history a’ wrang; for e’en Dick Turpin himsel’, much less Rab Roy, wu’dna

hae been guilty o' sic' awfu' deeds as ye tell me about. Na, na, human natur' in ony form is no jist sae bad as tae gang tae kirk and pray that power and opportunities may be afforded tae plunder ither folks lawn', and cut their throats in cauld bluid for the sake o' their guids and siller."

Were it not that highly civilised nations, when they declare war, still seek power from on high to "burn, plunder, and destroy," I should have been disposed to think that Captain Roughhead was not very far wrong when he questioned the accuracy of my historical readings about Vasco de Gama; but, alas! they are too true. From that same splendid cathedral those hypocritical supplications were made four centuries ago, amidst the most gorgeous pageantries of a gorgeous age, and by a people who then considered themselves the most civilised and refined of nations; and those deeds of infamy followed which have left a dark page in the history of Portugal, casting a gloomy hue over the discoveries of its greatest navigator.

I was so much struck by this truly grand and still beautiful cathedral, and so fascinated with the recollections of the historical associations in connection with it, that our skipper had some difficulty in getting me away from the site of scenes so startling and infamous, especially as at that moment the rich sounds of a magnificent organ were gathering the people to morning service, and just at the moment when sweet voices were heard from the choir in the distance.

"Come awa', Tommy, come awa'," impatiently cried our skipper as I lingered behind him; "a' that screeching and tha'e solemn tunes are only Papish mummary. They're no like the singing in your faether's kirk; the heart's there—there's nane here; and it mun be sae if what ye tell me about Captain Vasca is richt. Come awa', Tommy, come awa', this is no' the House o' God, however gran' it may be."

CAPTAIN ROUGHHEAD MEETS WITH A MISHAP.

Half-an-hour's walk brought us to the mansion of our consignee, but it was so large and stately a building that we were afraid to enter its porch. However, a couple of Gallegos—men from Galicia, who do the principal portion of the menial work at Lisbon, and who were carrying barrels of water on their shoulders for the inmates—seeing our difficulty, sent one of the household servants to us. This man evidently knew who we were, and having been made aware that we were expected to luncheon, threw the hall door wide open, and with a bow, and a hardly suppressed grin on his countenance, motioned us to enter.

Our skipper did not seem to be quite sure that we had got to the right house, and stood wiping his feet for a much longer time than seemed to be necessary on the door-mat, then drawing a silk handkerchief from his

pocket, he dusted his clothes with it and the tops of his shoes, and having done so, wiped the perspiration away from his forehead and face, an operation which streaked his ruddy countenance like the skin of a zebra, and caused the footman to grin more openly. In fact, the dust from the handkerchief when thus applied gave our skipper a very extraordinary appearance, although his naturally red face with the black stripes over it was quite in harmony with the rest of his full dress attire.

But the grandeur of the hall was not the only cause of his hesitation in entering, for, as its floor was of marble, as bright and slippery as clean-swept ice, he did not seem disposed to trust himself upon it. Mustering up courage, however, he entered, handing the footman his broad-rimmed hat, and having another rub of his forehead with the dusty handkerchief. These highly-polished floors are critical footways to persons not accustomed to them, and this fact seemed to be well known to Captain Roughhead. Slipping at every step he felt that he must come down; he was not wrong, for down he came with a thump on his stern just as the footman opened the door of the room, and announced to the family circle, who were assembled within, the arrival of "Senhor Capitan Rathead and Mouchi Mister Tonnie."

Our consignee and the members of the household, amongst whom were some very fashionably-dressed young ladies, rushed to the door to see if the "capitan" had hurt himself, and to assist him in getting up; but while our skipper assured the ladies that bodily there "wus na' anything verra far wrang," as he had fallen on the softest part of his person, he did not seem disposed to rise in their presence, and looked as if he would rather be introduced to them a little later on in the day.

We were all at first greatly puzzled to make out why the skipper continued to sit where he had fallen, and it was only after the ladies had retired that he whispered to me, "Tommy, I feel thae marble stanes very cauld, and I'm thinking that ma breeks hae' got the warst o' the tum'le. Jist you look behin' and see if they're hale and soun'."

It did not require much examination to confirm our skipper's suspicions. Lifting one of the broad flat tails of his blue coat, I saw that his nankeens had a slit in them which evidently extended a good way beyond that portion of his person which was then visible.

Our host seeing the difficulty induced the skipper to rise, when the ladies left and the drawing-room door had been shut. He then got up, though very reluctantly, and walked away to another room, holding his flat coat skirts with both his hands close to his stern to prevent the rent from being seen, to change his inexpressibles, or to have the damages repaired.

There were no trousers in the house that would fit our skipper's Dutch

build ; many pairs were tried, but as they all stuck fast at that part of his person where the breach had been made, there was no help for it but to hand over the nankeens to a tailor who lived close by, who did the job work, in his line, for the household.

The tailor must have been very expert and efficient in his handicraft, for within half-an-hour he returned the nankeens "doubled" at that part where the breach had been made, so that if our skipper again met with a similar misfortune they would not have split at that very awkward part of his person.

"Weel, Sir," said our skipper to the consignee, "I think I'm a' ready noo to appear afore the leddies ; but as I am rather nervous after the coup I ha'e had on the marble flair, yee'l maybe obleege me wae a wee drap o' brandy-and-water to pit my nerves in order—jist the wee'st drap, and plenty o' water in it, for I'm no accustomed tae strang drink in the morning."

The consignee seemed readily to know what was really required, and having given his order in Portuguese, the butler soon came back with a large tumbler full to the brim, and with its contents of so brown a colour that Captain Roughhead's expressed wish to have only "a very sma' drap o' brandy wae the water" did not seem to have been attended to.

Nevertheless, he gulped it off at one swing, not once drawing his breath, and, wiping his lips with the cuff of his coat, declared himself ready to face the "leddies."

But he was ill at ease ; the grand room and elegantly-dressed company, though all in morning attire, somewhat bewildered him.

Ten or twelve persons sat down to luncheon. I had never previously seen anything like the number of good things that were there presented for our choice, not even in the window of a confectioner's shop. But, somehow or other, my usual excellent appetite failed me on that occasion, nor did our skipper seem more disposed to partake of the many choice dishes presented to him. He had, however, a sip or two of the rich wines, smacked his lips over the champagne, and partook of just another "sma' drap o' coniac ; fine, pure stuff, as mild," he confidentially whispered to the young lady who sat next to him, as "yee'r mither's milk."

With one exception besides our skipper and myself, the company consisted of the family circle, and one or two relatives residing in the neighbourhood. The exception was almost as great a contrast to the rest of the company as Captain Roughhead himself, only he was more polished ; and he was evidently a frequent visitor, from the manner in which he was addressed and the free use he made of everything on the table. ~~His~~ word, he was quite at home.

"Captain Dryden," said our host, addressing this personage across the table, when our repast was nearly finished, "I should have introduced you to Captain Roughhead before. My friend, Captain Dryden—Captain Roughhead, of the *Arethusa*," nodding to them both as he spoke, and sipping a glass of wine. "It's entirely my fault; you ought to have known each other before. But, really," he added, I think rather maliciously, "my friend here," directing his attention to our skipper, "when he entered the room, was evidently a little put about by his mishap, and did not then seem to care about being introduced to anyone."

A titter ran round the table at this reference to our skipper's misfortune, for the ladies had all ascertained its result and the reason why luncheon had been delayed. It was therefore too bad to remind them of it before the skipper, who would, no doubt, have blushed had his countenance not already been so reddened with the sun, *et cetera*, and so streaked with the dust from his handkerchief that a blush would have made no impression upon it.

"Captain Roughhead, Captain Dryden, here's to you both," said our host, filling this time a bumper of Collare's red wine, and requesting them to follow his example. "May you know more of each other. How would England's Mercantile Marine get on without such men as you in the service?"

The two captains bowed to each other, filled their glasses, and then drank to our host and the rest of the company, the reference to Captain Roughhead's value in the Merchant Service of Great Britain having restored the usual equilibrium of his temper, which had been somewhat unsettled by the rather pointed notice to the breach in his nankeens.

THE ORANGE GROVES, WHERE OUR SKIPPER MET MR. FARQUHAR, WHO RELATES HIS GRIEVANCES.

Soon after the ladies had retired to the drawing-room, or to their usual avocations on a Sunday afternoon, the two captains found their way to the gardens and orange groves; and when our host informed them that as the mail for England sailed on the following morning, and he had various despatches to send by her, we were very glad to be left to ourselves. So far as regards the ladies, we saw no more of them. They had performed their part in receiving our skipper and myself, and no doubt, from what they saw of us, they were very glad to get quit of us.

The orange groves about the house were beautiful, and the large gardens beyond were as pretty as gardens can be laid out in the Portuguese fashion. After strolling about them for some time, we met the head-gardener in his holiday attire, for he himself never worked on Sunday, nor allowed any one under him to do so when he could prevent it. He was a grey-haired, soldier-looking man. Captain Dryden knew

him well, and accosting him with, "Fine afternoon, Mr. Farquhar" (his name and reply, as well as his appearance, at once revealing the fact that he was a Scotchman), he returned the friendly nod and remarked:

"On'y it's a fine afternoon, captain; the're a' fine afternoons in this kintry about this season o' the year."

"Verra hot," said the captain. "Want rain for the gardens, don't you?"

"On'y," replied the gardener, "it's aye verra hot about this time o' the year, as ye o'cht tae ken, Captain Dryden, after yee'r lang experience o' the climate and seasons o' Portugal. As tae rain, the leddies are aye saying, like yeersel', that we want rain—that the kintry wants rain, and they aften complain aboot it—but when it rains, which it dis at times, as ye ken, in awfu' plumps, they want sunshine. In truth, they dinna ken what they want; but God ken's best how to water His ain' gardin. He sends sunshine and rain, jist as He sees the soil and the climate want it, and dis the wark a great deal better than we wud dae it oursel's had we the watering o' the airth. Gee'n that was allowed to us, some folk wu'd want sunshine, ither's rain, and nae doubt there wu'd be some folk wha wu'd like to see it snawing out here in the hot months o' June and July. They wu'd na mind the gardins and the flowers, and the orange blossom, or the vines, sae lang as the snaw suited their ain' wants. It wu'd be a' for ourselves, each individually, gie'n we had the 'controul o' the elements."

There was no answer to Mr. Farquhar's reasoning, and though evidently a very dry mortal, and not prone to make new acquaintances, it at once became apparent that he was a man so much after Captain Roughhead's own heart that, had there been a tavern close at hand, I daresay he would there and then have invited Mr. Farquhar to adjourn and have a caulker.

But as there was not, they had a long chat amongst the orange groves and shrubbery without the caulker.

"And what pairt o' Scotland may ye be frae?" inquired our skipper. "Gin it's no' tak'ing a liberty in speering, considering our short acquaintance; but I can see ye'er frae the north o' our island?"

"Inverness," replied the gardener, somewhat curtly.

"And what brocht ye' out here, may I spe'er?"

"Soldiering," said the gardener.

"Sodgerin'?" repeated our skipper, resolved to have a good deal more information out of Mr. Farquhar than that gentleman at first seemed disposed to afford. "Sodgerin' and gard'nin' dinna aften gang tae gither, and ye mun hae been weel trained some time o' your life to hae made sic' a beautifu' garden as this."

The favourable allusion to the fine order in which the garden was kept

drew out Mr. Farquhar to a greater length than he at first seemed disposed to go ; and when he got into what was evidently an old groove, he gave us a longish yarn.

"Weel," replied Mr. Farquhar, "I cam' oot here wi' Wellington mair than thretty years ago, and though I hae aye been thinkin' about gawin' back tae Scotland, I hae ne'er been able to manage it."

All this tickled our skipper's curiosity to have further particulars. "So yee'l hae been through a' the Peninsula war?" he inquiringly remarked.

"That I hae," replied Mr. Farquhar, "and muckle guid I got frae it. Nothing but fighting and starvation ; and as to prise money"—this was evidently a sore point with him—"I ne'er got a brown bawbie. It wus aye said that there was a guid bit o' siller due to the regiment to which I belonged ; but, though the captain there," pointing to Captain Dryden, "geed himsel' a great deal o' trouble—for which I am muckle obleeged to him—he ne'er could get ony answer frae our consul, or e'en frae our Minister, except that they didna ken onything about it. I aye thoct that they were sent here to look after the interests o' the King's subjects, but they wu'd only laugh at ye gee'n ye wur to say as muckle. Maybe," continued Mr. Farquhar, warming with his subject, "it's no' their business to look after the collection o' prise money. But when a freen o' mine—a countrimon o' our ain—wha had supplied the Government o' Portugal wae a cargo o' the best Scotch coals, and wanted payment, the clerks at the offices laughed at him ; and when somebody tel't him that he wuda get paid unless he fee'd them, he went awa' tae our consul, wha only laughed at him tae, and said he had nae time tae attend to sic' matters, though my freen tel't me that he saw him the same afternoon wae a lot o' folk at a garden-party amusing himsel'. I ken what it is to be sent twa and frae the Legation and Consolate. I been at them baith often enough to speer about my prise money, but a' to nae purpose."

And here Mr. Farquhar poured forth his wrongs and the "worthlessness" of British representatives abroad with a volubility that surprised our skipper, who had at first taken him for one of those dounce, quiet countrymen of his own, out of whom little can be got, except when some secret spring is touched, or they have some wrongs to be redressed:

"I aince went," continued Mr. Farquhar, "resolved to see our Minister himsel'. I had ne'er been able to see onybody at the Legation, except a porter, wha could na speak a wurd o' English, to speer about my prise money ; but I micht as weel hae tried to see King George the Third, and I was tel't the thing was a'togither out o' the question. I then tramped awa' doon to the quay side to see our Consul, whom I had only aince been able to see afore, but this time I was tel't that he was o'er muckle engaged to see me. Now, I thoct that very strange,

for I could hear an unco' lood snoorin' in his room, for the door was a wee bit open, and I could swear it was the Consul. I ken't the sound o' his voice weel enough; for besides hae'ing talked wae him afore, I had heard him often enough bargaining wae the fish wives down in the market-place. There was nae mistaking his snore ony mair than his voice, which was a very rough and loud one. And it wus the case, for, after waiting twa long hours, he saw me; but he may jist as weel no' hae seen me. By waiting to see him I lost an afternoon's work; and he only glowre'd, and asked what business I had to come and bother him again when he had gee'n me his answer afore. But as I had lost the best part o' the day's wark, I was determined to get something out o' aine or the ither, so awa' back I trudged to the Minister, and after waiting an hour at the door I saw him, but that wus a'. He wu'd na stop half a minute to speak to me, except to say that he had nae time, as he had an important meeting to attend. And what dae ye think that important meeting was?" continued Mr. Farquhar, in great disgust. "Why, he went straicht awa' in his carriage tae the bull fecht, where my son Sammy saw him flirting wae a lot o' ladies in the boxes! Warse than the Consul, for he didna tell a lee about whar he was gauing when he said he was very busy."

"Ne'er mind," said our skipper, in a consoling tone. "Yee'l get justice some day or ither."

But I never heard that he did; and whether Mr. Farquhar had any real claim for prize money or otherwise, or had any right to trouble the Minister or Consul about such matters, there can be no doubt of the fact that, as a rule, when any British subject required redress for substantial wrongs abroad, and hoped to obtain it through the influence or instrumentality of the representatives of his nation, he may, in the words of the honest gardener, "whistle for it till his throttle's dry, and whistle again and again, but they'll be naething din for him."

And here Mr. Farquhar's antecedents may be briefly told. He had been a gardener in his youth; but tempted by the prospect of the prize money, which he never got, and the "glories of war," which he found to be all moonshine and something worse, he had enlisted in a Highland regiment destined for the Peninsula war. When that was over, he had obtained his discharge at Lisbon, having been previously married there to the widow of a comrade who had died on the passage out, and turned his attention to the trade in which he had been brought up. He found ready employment in the neighbourhood of that city, and step by step he had risen by his knowledge, temperate habits, and industry, to the position he held when I met him, which was a very good one compared to soldiering.

CHAPTER IX.

CAPTAIN DRYDEN AND HIS ANTECEDENTS.

Captain Dryden's antecedents resembled in one respect those of Mr. Farquhar. He, too, had been brought to Lisbon by the Peninsula war, but in the capacity of master of a small transport, belonging to Shields. He was himself a Shields man, and had been brought up in the coal and Baltic trades. After making various voyages to Lisbon with coal and other rough commissariat stores, his vessel was unfortunately lost on the Cascaes rocks, at the entrance to the Tagus, where she became a total wreck. Having formed a few acquaintances at Lisbon on his previous voyages, he resolved to remain there and enter into a shipchandlery business with a Portuguese, who had previously supplied his own and other British vessels with their stores. After making a little money he returned to Balem, where he acted as an assistant to the Consulate by reporting British ships as they entered or cleared at the Fort, close to the entrance of the Tagus, where all vessels were obliged to bring up to be boarded by the Customs and Sanitary authorities. Captain Dryden further looked after any wrecks of British vessels on that part of the coast, or any waifs of the ocean presumed to be British property. Now and again he rendered some little assistance to the captains and officers of our ships of war, which have so long made the Tagus a rendezvous. At the time to which I refer, and for many years afterwards, he was a well-known and not an unimportant personage at Balem. Most of the merchants resident there had him frequently to dinner at their houses. He had, consequently, become much more polished in his manners than Shields' skippers usually were or are, and had lost all their peculiar dialect, though retaining, when he met men of his own class, much of their joviality.

I shall never forget Captain Roughhead's look of delight when he ascertained, just before we were about to leave the orange groves, that Captain Dryden was from Shields, his own native place; and the feeling was reciprocal, as he there and then insisted that our skipper should accompany him to his "cabin," a pretty little cottage which stood on a hill facing the sea, and not far away from the mansion of the consignee.

The cabin in many respects was not unlike the name it bore. Everything within was in shipshape order. The tumblers and glasses swung from a tray suspended from the low roof above the dining-room table, while the table itself had four stout legs fastened to the floor.

In one of the corners of the room, there was a locked cupboard, with a glass front, containing his liquors in variegated bottles, with labels of rum, brandy, gin, and whisky, designating their contents, and various other good things. In the other corner stood a similar

locker, which was open, for his plate and the best of his crockery ware; and around the walls of the room were prints of ships in different positions—under sail, at anchor, or in a storm, with an ugly cliff under their lee. A stuffed monkey, a case of stuffed birds, a few ornamental demijons, a couple of carved cocoanut cups, two very easy chairs, and three of the ordinary stiff-legged sort, with a few other odds and ends completed the furniture of his dining-room.

The other sitting-room—be it drawing-room or parlour—we did not see, for it was under the special charge of his old housekeeper, who seemed to have quite as much her own way in all household affairs as if she had been his wife. But whatever this sanctorum may have been which was under her especial control, the captain's bedroom, into which be it said, with all her authority, she was never allowed to enter, was a ship all over. From the ceiling a hammock was suspended wherein he slept; an easy chair and a small table stood in the centre, whereon was a leaden box full of shag tobacco, and pipes of various sorts; a spittoon and washhand-stand in one corner, and a sea-chest in the other, completed its furniture, except I may add that there hung above what appeared to be a mantelpiece, though there was no fireplace in the room, a fowling-piece, two pistols, and an old sword.

The house itself was only one story high. It was built partly of stone, but chiefly of wood. Surrounded by a verandah, around the pillars of which grew various creeping shrubs and flowers, and with a little garden in front laid out in the English style, the whole presented many more charms to Captain Roughhead than the mansion we had just left.

Nor was I less charmed with it. It was just one of those places that we read so much about in novels, but seldom see; and its owner was one of those rare and warm kind-hearted men who make you as much at home at first sight as if you had known them for two-thirds of your life.

Tea was laid, with various solid accompaniments, to which our skipper and I did ample justice. Afterwards we adjourned to under the verandah, where the many-coloured glass bottles, and a couple of long clay pipes, with the leaden tobacco-box, had been neatly arranged; and here the two old salts spun their yarns that pleasant evening.

THE TWO CAPTAINS HAVE THEIR GROG, AND SPIN THEIR YARNS.

"And so you're frae Shields," repeated our skipper, addressing our host, as he surveyed the beautiful Tagus, which lay full before and below us, with the hill above St. Ubes in the distance, but looking askance at the liquor bottles and pipes as if quite ready to commence operations upon them. "Lor, bless your heart," continued our skipper, who, though he had lost his Shields dialect, spoke as broad Scotch as if he

had been born as well as bred in Wigtonshire, "wha wu'd hae thoct that I should hae foond an auld townsmen o' mine aine sae far awa' frae hame, and sae comfortably settled—and a schule-fallow, too. Gie me anither shake o' yur hann. I canna get ow'r the thoct." Indeed, our skipper's feelings of joy were getting, he said, so much the better of him, that he felt obliged after a little, but only very little pressing, to help himself to "a wee drap o' rum, wae plenty o' water," as a means of relief.

"You would know old Captain Fordyce," remarked our host, after he had lighted his pipe and filled his own tumbler with rum-and-water; "he lived up in Dockeray Square, and owned a good many colliers."

"Ken him?" replied our skipper, "I should think sae, for it was in ane o' his brigs I served my apprenticeship. He began the temperance principle in his ships when I was wae him; and he didna begin it a bit ow'r soon, for he was himsel' a drucken chiel in his day."

"I think," said Captain Dryden, "that it was one of his captains who was found dead, or supposed to be dead, one morning in the cabin, on a voyage to the Baltic, that frightened him into the adoption of the temperance principle in his ships. It was said that when this captain was found, and supposed to be dead, he was sitting in an arm-chair with a short pipe in his mouth, and a couple of empty gin bottles by his side. The sailors said that he was dead without doubt, for there he sat for hours after he had been found without moving or breathing. But it was touch and go with him in more ways than one. The mate—who, I think, must have had a spite against him—held that he was clean dead; as dead as a door nail; and proposed to the crew to have him sewed up in a hammock, and have him decently buried. And sewed up he was, and overboard he would have gone with the broken flue of an old kedge anchor at his feet had the knocking about not brought him to life again. It really was touch and go with him in more ways than one, for the gin had all but finished him, and had he only kept quiet a little longer, the mate would have made an end of him outright. No wonder that old Fordyce took to temperance, and prohibited strong drinks in his ships after that, for he might have been some day sewed up himself in one of his hammocks."

"O'!" said our skipper, "th' story's quite true, but ye hae nae got a' th' particulars about th' close o' it. It's quite true though. I was aine o' th' sailors o' th' brig at the time, and if th' gin, or the 'trance' after it, as I heard some one ca' it, did na dae for him, the burial wud, for he was just on the point o' being slipped aff th' plank frae the ship's side, when he gave a groan and a grunt, that made the sailors drap him like a hot potatoe, luckily on the deck instead of ow'r the ship's side, and rin for their lives in clean stark fear to th' farthest end o' the brig! 'Oh!

oh!—hillo! ' roared th' dead skipper, for he was an awfu' Tartar when leeving, as his body fell thump on the deck; and the 'Oh! oh!' had such an awfu' unearthly sound that it was sometime ere ony aine wu'd gang to release him from his canvas coffin."

"The mate," continued our skipper, "had rin awa' and hid himsel' in his berth; the cook was delirious wi' fear. A' the sailors rin tae different parts o' th' ship, as far awa' frae the gangway as they could get, ready to rin up the rigging, or jump overboard, should needs be. Naething, as ye ken, Captain Dryden, frightens a sailor mair than a ghost, or a deed mon, should he come to life again; and this wus jist ane o' the few cases o' a deed mon coming to life, which they had heard sae muckle aboot, but had never seen before, that made their fears ken nae boun."

I drew close to our skipper as this fearful tale was told, as much frightened as if I had seen the dead-and-alive man writhing in the hammock, while Captain Dryden re-filled his pipe, and helped himself to another glass of grog, as if he too had become somewhat nervous by listening to the details.

"But had somebody," continued Captain Roughhead, "not lent a hand, the skipper micht ha'e chooked himsel', or thrawn his neck whar' he was; he wriggled and raved about at sic' a rate. So I jist opened my jack-knife, and gawing cautiously towards him, ripped up the tracings o' the hammock in a trice, when out flew the captain in a jiffey, throwing his arms aboot him, and swearing like ony Turk. He was sober enough then, but he could nae get up, as the fluke o' the auld kedge-anchor was fastened tae his feet. I soon cut this adrift, though he gie'd me nae thanks for my trouble, swearing at me and at everybody else. But the fricht made him a sober man for life; at least, I ne'er saw him the warse o' liquor on that voyage, or on ony ither of the three voyages I sailed wi' him afterwards."

THE TWO SKIPPERS MORALISE.

"That just confirms what I have always thought," replied Captain Dryden. "An example of the danger of too much drink, such as that, is worth a thousand lectures on temperance; and no wonder Captain Fordyce ever afterwards became a sober man, and forbade the use of strong drink in his ships. Only prove to a man that too much drink may not merely be his ruin, but his death, or that it prevents him getting on in the world, or renders him liable to make a fool of himself, and he will keep within proper limits." What those limits were I cannot say; for our host, after these very sensible remarks, re-filled his pipe, and helped himself to a third tumbler of rum-and-water.

"Just so," said Captain Roughhead, following the example of our host. "I like temperance, but abstinence is clean contrary to Scripture.

‘Tak ’a little, for thy stomach’s sake.’ I tak’ my glass o’ grog for my stomach’s sake, but I draw a leemit.”

It was quite true that Captain Roughhead did draw a limit; and when he had any important duties to perform, he always had his senses clear; but, unfortunately, the limit was not defined, and while, on some occasions, it was strictly fixed at one, or perhaps two caulkers, it sometimes extended to more; and, in this case, before the two friends parted, it reached six each, exclusive of what they had had at the mansion of the consignee. But the occasion was an unusually happy one in the page of our skipper’s history, and the day had been one of great enjoyment, the mishap, when his modesty and nervous system had received such a shock, alone excepted. Perhaps that misfortune, combined with the joy of meeting so old a friend, had something to do with the extra tumblers he imbibed, for he referred, more than once in the course of the evening, to what “the leddies must hae thocht” when they saw him sitting on the marble floor, and not inclined to change his position.

Be that, however, as it may, the extra tumblers had no perceptible effect on Captain Roughhead; nor had they much more effect on our more polished host, beyond opening his mind, more freely than otherwise, on the customs and doings of the Lisbon people, Portuguese and British.

CAPTAIN DRYDEN’S GRIEVANCES.—DISCUSSION AS TO OUR DIPLOMATIC AND CONSULAR SERVICES.

“Here I have been,” he said, “for more than ten years, making the entries and clearances of all the British ships that pass Balem, and doing no end of work for our ships of war, and all I get for my work, experience, and advice, to the Minister and Consul, is £50 per annum, and the right to hoist in my garden the British flag at my own expense,” pointing to the flagstaff as he spoke, which stood in the centre of the garden, “while our Consul, who does nothing, and knows nothing, gets £600 a-year; and our Minister, who knows less, draws his £4,000 per annum from the British Exchequer, besides having a free house; and, in the case of the Consul, a good many perquisites. I would not complain, were it not the case, that the Vice-Consul, who has only £150 per annum, and I, do all the work.”

“The Consul, it is true,” continued Captain Dryden—for he had his grievance, like Mr. Farquhar, but, in his case, a real one, as in that of many other most useful subordinates—“signs and sends to the Foreign Office a lot of returns, but the Vice-Consul makes them up, and he and I collect all the materials. As to our Minister, all he does is to write despatches, which he seldom knows much about, for we collect the information for his secretary and staff of clerks, and they draft the

letters, and lay them before the Minister. It may ill-become me to say so, but Mr. Farquhar was quite right in all he said to you, though I am not quite sure that there ever was any prize money due to the regiment to which he belonged ; but if there had been, it would have been all the same, for neither our Minister 'nor Consul would have troubled themselves in rendering him any assistance to get it ; and what he said about the British merchant who sold to the Portuguese Government a cargo of coals, for which he never got payment, was quite correct. I know many cases here, where our countrymen have been unable to recover payment of their just claims against Portugal, through sheer indolence on the part of our officials, or for fear of offending the Portuguese authorities. I do not mean that it is their business to take up disputed claims, or when clear, to enforce them ; for when we sell to persons where we know the payment is doubtful, we do so with our eyes open, and must take our chance ; but when the claim is clearly an honest one, our Minister and Consul might render much more assistance than they do towards its recovery. In this respect, the representatives of the United States, and of various other foreign countries, are much more efficient than our own."

"Why, dinna our Government," enquired Captain Roughhead, "train up and promote the sort o' men best fitted for their wark as we do in our ships, and as is din in a' ither trades or professions ? What's the use o' ha'ing baith a Minister and Consul here when one man o' experience if properly edicated could easily do a' the wark, and do it better than the twa wu'd appear, by a' accounts, to do it now ?"

"Oh, that would never do," replied Captain Dryden, who, like many other persons, was opposed to what is known as "radical changes ;" "that would never do, for our Minister must be a gentleman of high family ; he, you know, represents the King, and must be fit to appear before royalty, and rank with the ministers of the country to which he is accredited."

"As to the high family," retorted our skipper, "I'm no verra sure about the force o' that argument, for ye ken knowledge is power ; and the son o' a ploughman, had he only the edication and the training—the manners he wu'd soon learn—and the practical experience, wu'd be far mair likely to carry his point whar onything o' importance was at stake concerning the interests o' oor country than ony lord, however high his breeding wha ken't naething about the subject, except what the likes o' ye and the Vice-Consul tel't him, and e'en then he wu'd likely mak' a mess o' it when he cam' to contest the point wae clever and experienced foreigners."

"But the duties of a Minister and Consul are different," replied Captain Dryden, who, whatever he may have said about their ignorance, stood

up stoutly for the existing system, although he failed to produce any sound arguments in favour of it.

"What's th' difference?" inquired our skipper. "Their duty is to protect the interests o' the nation they represent, and uphold its honour if needs be. Besides that, they may ha'e to send hame ony information about the country likely to be usefu', and do what they can while protecting the interests o' British subjects to get the laws o' th' country whar they are 'credited made as fair and as like our aine as possible. But little oor Ministers do in that way; if I'm no' mistaken, the'r heeds are mair ta'en up wae the idle gossip that they hear about Court and in the ball-rooms, or at dinner parties, which they wu'd better keep tae themsel'es, for it hae mair than ance got us into troubles we wud ne'er hae got into had they ne'er heerd it, and no' been fuils enough to repeat it. As to the duties o' oor Consuls tak'ing notes o' the names o' oor ships, and sending hame shipwrecked or distressed sailors, maist o' whom hae been drunk, and ran awa' frae their ships, and wha' wud better be left whar they war'—ony clerk could do that; ye and the Vice-Consul do a' that wark yoursel'es here at Lisbon."

It was evident that our skipper had the best of the argument so far, for the only answer Captain Dryden could give was a repetition of what he had already stated, adding something more about having "gentlemen" in these positions.

"Weel, weel, I dinna say you shou'd mak' a man a Minister wha is no' a gentleman in every sense o' that word, but a man disna need to be ane o' the members o' our austocracy to mak' a gentleman. A' the lords in creation put t'gither wud na mak' a gentleman if it was na in him by natur'. Ye'l sometimes find real gentlemen at the plough tail, or in the fo'castle o' a ship; they are gentleman at heart and in a' their actions; edicate sich men, train them to polished manners, and gee them the means o' gaining a thorough knowledge o' the duties for which they are wanted, and wae the folk amang whom they are to mingle, and yee'l mak' them the best Ministers England e'er saw."

"But how is that to be done?" inquired Captain Dryden.

"Duin! Dinna tak' ony youths into the public service unless they are of honest moral parents, and hae a guid soun' education and guid natural talents, and sic' like, which can be easily tested if we wu'd only dae awa' wi' patronage and leave them to be examined by competent, disinterested men. After they are thorough maisters o' how to read and write and count in their aine language—very essential learning, for many 'learned men' can dae neither—they should ken the foreign languages, and how to say what they hae to say in a clear manner, without ony round-about either by word o' mouth or in writing. When they are fit for't, and after they hae had, if necessary, some training at

our Foreign Office—there are some clever chieels there—send them abroad to be Vice-Consuls; and if they are clever fallows, mak' them Consuls when they hae experience enough; and if they are very clever, mak' them in time what ye ca' Charge d'Affaires, and then Ministers, or Plen-poteniers, and Ambassadors, according to their abilities or experience. If a' that was din, I'll warrant ye oor business abroad wu'd be din properly in a' its branches, and we wu'd nae langer hae ony o' they lounging, lazy, flirting, gossiping, horse-racing, and bull-fechting chieels, o' whom we hae rather too many now representing our interests in foreign pairts. The qualifeecation for a public office ocht ne'er to be family connexions or the getting rid o' a fine leddy; or sic like loose gangin as I hae jest mentioned."

"But surely, Captain Roughhead," replied our host, "you do not consider our Ministers as a whole, or anything like it, to have any resemblance to the class of persons you describe? They are nearly all highly-educated gentlemen, and members of the highest families in England."

"That may be," pertinaciously replied our skipper; "but their edication is no' o' the richt sort, and they hae nae knowledge or experience o' commerce, or the places whar' they gang tae, and without these they are no' fit to be what you ca' diplomists, which, I suppose, means managing matters o' policy and the richts o' nations, their aine especially, to the best advantage and in a peaceful manner. I am far from sayin' they are a', or onything like it, what I hae described, but ow'r mony o' them are, as ye yersel' hae jist admitted; and a man o' your gumtion canna' but see that they wu'd be far better than they are now if trained in-the way I think they should be. We wu'd na' mak' sai' mony blunders as we do, nor get into sai' mony scrapes, some o' which we dinna' get out o' without war, and a' its horrors. Then, jist consider what a saving o' expense there wu'd be," continued our skipper, "by a combination o' the wark o' the Minister and the Consul, and how much better it wu'd be din in ane establishment than in twa, and under aine competent head instead o' twa doubtfu' ones. As to grandeur and importance, a big building, whar' a' wu'd-be located, wu'd strike the foreigners as mair imposing than the twa or three shachling-looking places ye hae got here, far awa' frae each ither, mak'ing a clean fuil o' the British flag and the King o' the grand nation they represent."

It was not very easy in those days (and in circumstances now, happily passed away for ever) for a man with the experience which Captain Dryden had had at Lisbon to oppose any really valid argument to the changes proposed by our skipper, so he changed the subject and proposed another glass of rum-and-water, which our skipper said must be the closing one. Having refilled their glasses and replenished their pipes,

the two skippers found no end of subjects to talk about, relating numerous anecdotes about old and mutual friends who lived on the banks of the Tyne and the Wear, and various reminiscences of bygone years, to which I have not space to refer, parting from each other with many expressions of regret, and parting SOBER men.

"Sober men!" I think I hear some of my readers exclaim. "Sober men, after the number of caulkers you tell us they had before parting."

Yes, "SOBER," I repeat; at least I can say of my own knowledge that our skipper walked without any assistance, and in as straight a line as any member of a temperance society could do, though the road was crooked and hilly enough, from Captain Dryden's cabin to our jolly-boat, where Jack lay waiting for us at Balem Quay.


Now, such cannot be said of many of the "gentlemen" of that period, whose dinner parties and midnight bouts have been so graphically described in the pages of "Blackwood"—written in many cases, no doubt, from their author's own experience. There and elsewhere we learn that half-a-century ago, too many of those gentlemen could not, after such a jovial meeting as these two skippers had, walk as straight to their homes as he did to the jolly boat; and I am sure that Captain Dryden did not that night make the floor beneath the dinner-table his bed, as the gentlemen of those days are described to have very frequently done, with its four legs for bedposts, and their shoulders, or other parts of their comrade's person, for pillows.

However inconsistent Captain Roughhead's professions may have been with his practice of indulging occasionally at merry meetings in more caulkers than I can recommend any of my friends to take, he had made an advance of the gentlemen of the age in which he lived, for he fixed a limit to his indulgence, and thus set them an example not unworthy of their adoption.

It may have been the case that our skipper could stand more intoxicating liquor than most men, and that is likely enough; but that does not alter the wisdom or necessity of a man regulating his strong drinks to what he can stand. It is the abuse, not the use, against which sensible individuals, and sometimes whole communities, justly complain; and although the punishment which a man who inordinately indulges inflicts upon himself is usually pretty severe, I should, rather than attempt to enforce Maine Liquor Laws, increase the punishment now inflicted by law upon all persons who in their cups injure others. A greater stringency in the law in this respect would be more effectual in diminishing drunkenness and its concomitant evils than any such laws which only restrain the freedom and the rational enjoyment of the many in a futile endeavour to improve and elevate the few.

(To be continued.)

DISCIPLINE IN MERCHANT SHIPS.—MASTERS.


 HERE is perhaps no subject connected with the Mercantile Marine of this country which now more peremptorily demands the attention of the Government and of the Legislature than the state of the law relating to the maintenance of discipline in merchant ships. The proposals for increasing the stringency of the discipline clauses of the Merchant Shipping Act contained in the dropped Bill of 1875, show, indeed, that the question has not been overlooked by the Government; but the Act of the present year contains no provisions on the subject, and so the Statute Law, as to discipline in merchant ships, remains what it has been for the past twenty-one years. Mr. Burt and Sir William Harcourt, have, it is true, intimated their intention of calling the attention of the House next session to the existing law, but with the view of relaxing, rather than of increasing its stringency, so far as merchant seamen are concerned. The member for Morpeth desires to see the provisions of the "Employers and Workmen's Act" of last year extended to our seamen, who are now, with apprentices to the sea, specially excluded from its provisions; while the member for Oxford sees in the application of the Criminal Law to cases of breach of contract, an unwarrantable invasion of legal principle. Our present object is not so much with the consideration of this important question as one of abstract law, as to point out how the law stands, and how far its existing provisions have failed in securing the object to which they were directed—namely, the enforcing of discipline and the maintenance of the master's authority. A great deal of evidence was taken before the Royal Commission respecting the working of the discipline clauses of the Merchant Shipping Act, and the character and condition of our seamen; the result is embodied in two pregnant paragraphs which will be found in the Commissioners Final Report (pp. 8-11). "British seamen have improved in education, but are deficient in thrift, sobriety, and discipline, and considerable risk to vessels, at first starting results from the drunkenness of their crews. *The protective character of recent legislation has exercised a bad influence on the character of seamen, destroyed confidence between captains and crews, and promoted insubordination.*" After this very strong expression of opinion, the correctness of which is not only attested by a reference to the evidence on which it is based, but by the columns of every maritime journal throughout the kingdom, it is hardly possible but that an effort will be made, by an amendment in the law, to control if not to remove, an ever-present danger to merchant shipping, a source of constant embarrassment to shipmasters and owners, and an impediment to the prosecution of maritime trade. Meanwhile, it may

be useful and not uninteresting to point out how this question of discipline has been regarded by the jurists, and how far the principles laid down by them, and founded for the most part upon the regulations of maritime States, have been recognised by the existing Statute Law of England, and with what results.

It would seem from Art. 12 of the Laws of Oleron, and also from a passage in Pardessus (382) that the ancient marine ordinances ventured upon greater detail in prescribing discipline than is now the practice, or considered advisable, though they, for the most part, studiously avoided mentioning the "parental power" which the master was supposed to exercise. Thus, by the French Ordinance (Liv. 2, Tit. 1), though the master might inflict punishment on "drunken and disobedient mariners, and those who ill-treat their comrades, or commit other like faults in the course of their voyage," the consent of the steersman and of the mate was required. By the same Ordinance, as well as by the Hanseatic Ordinance (Art. 80), though the master may by force restrain the commission of great crimes, he has no judicial authority to punish the criminal, but ought to secure his person, and cause him to be brought before a proper tribunal, to be tried for his crime according to the laws of his country. Passing from these rules of maritime States, and coming to the Common Law of England, we find that it recognises the despotic authority of the master on board his ship to regulate, restrain, and, if necessary, to punish mutinous, or insubordinate members of his crew; but for such exercise of authority the master may be called to account on his return to this country, and to answer to a mariner whom he has beaten or imprisoned in the course of a voyage, "and," says Abbott, "for the justification of his conduct, he should be able to show not only that there was a sufficient cause for chastisement, but also that the chastisement itself was reasonable and moderate, otherwise the mariner may recover damages proportionate to the damage received. And if the master strike a mariner without cause, or use a deadly weapon as an instrument of correction, and death ensue, he will be guilty either of manslaughter or murder, according to the rules and distinctions of the Criminal Law of England in analagous cases, all of which are applicable to persons in his situation." To this point of the master's authority there is a well-known judgment of Lord Stowell's in the case of the *Agincourt* (1 Hagg. Ad. 271, 272), which has been properly described as replete with wisdom and humanity. "No statutable regulations," said his lordship, "exists upon this subject. The only authorities are supplied by decisions of the Courts of Law, acting upon considerations of necessity and just discretion. In all cases which will admit of the proper delay for inquiry, one inquiry should precede the act of punishment. There are cases, indeed, which neither require nor admit of such deliberate procedure; such are

cases where the criminal facts expose themselves to general notoriety by the public manner in which they are committed, or where the necessity occurs of immediately opposing attempted acts of violence by a prompt reaction of lawful force, as in the disorders of a commencing mutiny. It may be prudence, but it is not matter of strict obligation in vessels of this kind, that the master should communicate with other officers of the vessel. Similar reasoning is employed by Sir J. Nicholl, in the case of the *Lima*, where his lordship held, that the captain, being threatened with assault, the act is so near one of mutiny, that it would be justifiable on the part of the captain to quell it by striking the first blow. The Courts in America have carried this principle of the master's right to punish seamen for insubordination still further, and have laid it down that where it appears the punishment is merited, they will not undertake to adjust exactly according to their own ideas of fitness and propriety, the balance between the offence and the punishment, and they will not award damages unless the punishment is manifestly excessive.

Such are the principles on which at Common Law, and according to the decisions of our most eminent jurists, the authority of the master of a merchant ship to control, and, if necessary, to punish, insubordinate members of his crew, may be said to rest. They are sufficiently clear and intelligible, relying for the exercise on the necessity of each case. In 1854, the Legislature undertook by Statute to define seamen's offences, and to affix certain penalties, accompanying these provisions by a requirement that an entry of each offence shall be made in the Official Log Book, signed by the master and by the mate, or one of the crew, which entry must be read over to the offender; and if there is a failure in any of these requirements, a Court hearing the case may refuse to receive evidence of the offence. Upon the authority of the master otherwise, or upon the manner or means of enforcing it on board his ship, the Statute is virtually silent. Now, experience has shown that the "logging" of offences, where it is not altogether ineffectual, frequently increases the insubordination it was intended to control. We have, therefore, a disciplinary code affecting the crew enacted by Statute, while, for the exercise of authority occasionally necessary to support his command, and save the lives and property committed to his charge, the master is compelled to seek his justification and protection under the general law. The Statute, in effect, protects the seaman from the consequences of his misconduct; but, so far as the master is concerned, leaves him helpless. It is true, that by the Act of 1854, Section 289, any act tending to the immediate loss, destruction, or serious damage of the ship, or to endanger the life or limb of any person belonging to the ship or on board, or the refusal or omission to do any lawful act, "proper and requisite to be done" to preserve the ship and those on board, is

punishable as a misdemeanour; but this is an offence which may be committed by the master as well as by any member of his crew, and for which he is equally answerable, and the section can hardly be said to operate in the direction of supporting the master's authority, except in those extreme cases where the ship is in peril; and then it may be doubted whether it is of any effect. At all events, the prosecutions under it have been few and far between. An attempt was made, as above-mentioned, in 1875, to amend to some extent this defective state of the law, and to strengthen the master's authority at sea. Following the old Marine Mutiny Act (11 & 12 William III.), the Bill proposed to make a conspiracy, or endeavour to make a revolt on board any ship on the high seas, a felony, punishable by penal servitude, with or without hard labour. The Bill was dropped, and as the opportunity for introducing this, or a similar provision, into the Bill of the present year was not taken, the matter remains in abeyance, and the master of a merchant ship may at any time find himself in the position of the captain of the *Locksley Hall*, and be compelled to choose between having to submit to insolence and insubordination on the part of an ill-disposed and useless member of his crew, or to take the consequences of using his authority. Captain Barnes found his justification not in the administration of the law, but in the common sense of the British public, to which a well-founded appeal is never made in vain. But a man in the position of the commander of a merchant ship in these days, with numbers of lives and vast amounts of property committed to his charge, should not be placed in a position of embarrassment with respect to his most important duty—the exercise of his authority on board his ship—when he has to deal with insubordination or mutiny, and is far removed from all external assistance. That authority, and the extent to which it may be lawfully employed in the maintenance of discipline, and the protection of the interests committed to him, should not be left in doubt to be ascertained by a reference to the Common Law or the decisions of Judges. It should be defined by Statute and as clearly, at least, as the duties and the rights of the men he is supposed to command. There should be no difficulty in effecting this needful and salutary amendment in the law. It would not lessen the shipmaster's responsibility for any undue, reckless, or cruel exercise of his authority, and it would teach the members of a ship's company that the master's authority is a reality, and not a pretence, something to be felt throughout the continuance of the mariner's contract, for the enforcement of which the master has a distinct legal warrant, and which, if he has acted rightly, will assuredly be upheld in a Court of Law. Such a legal sanction is commensurate with the occasion which renders it necessary. "Positive disobedience," to employ once more the language of authority on this

subject, "is an offence of the grossest kind. It challenges the existence of authority. If open and avowed, especially if accompanied with insolent language, or acts of violence to the officers, it speedily engenders mutiny, and compromises the safety of the ship and all on board. Prompt reaction of lawful force in the coming disorders of mutiny may be a measure of precaution preliminary to subsequent punishment. In smaller matters of public notoriety, instant punishment, proportioned to the offence, and to the salutary effects to be produced on others, may be indispensable to check the influence of bad example, or to quell an infectious spirit of rising discontent and insubordination."

SHIP TONNAGE.—The annual statement of the tonnage of the vessels which entered, whether with cargoes or in ballast, from foreign countries and British possessions at ports in the United Kingdom shows the following results for the year 1875 :—Of every 100,000 tons arriving the vessels arriving from foreign countries constituted 85,347·46 tons, and vessels from British possessions 14,652·54 tons; the average of the preceding four years being 85,056 tons and 14,944 tons respectively. With regard to the nationality of the vessels thus arriving at ports in the United Kingdom, the returns show that in every 100,000 tons British vessels constituted 66,941 tons, and foreign vessels 33,059 tons, showing two-thirds British vessels and one-third foreign vessels. The averages of the preceding four years show 66,981 tons British and 33,019 tons foreign. The average gives the share of foreign vessels in every 100,000 tons as follows :—Arriving from foreign countries, 31,170 tons, and from British possessions, 1,849 tons. In 1875 the share of foreign vessels was 30,869 tons in arrivals from foreign countries, and 2,190 tons from British possessions. The following are the largest items in the list, showing the share of each nation in every 100,000 tons arriving at our ports in 1875 :—From France came 14,977 tons; from the United States, 14,412 tons; from Germany, 9,869 tons; from Holland, 7,545 tons; from Belgium, 5,988 tons; from Russia, 7,522 tons; from Sweden, 4,578 tons; from Norway, 3,449 tons. The vessels arriving from British possessions, 14,652 tons in 100,000, show 5,501 tons in 100,000 from British North America, 4,306 tons from the three Presidencies of British India, 1,158 tons from Australia, and 1,112 tons from the British West India Islands. All the preceding figures show ratios. The absolute tonnage of ships entering our ports in 1875 was 22,693,163 tons—namely, 19,868,087 tons from foreign countries and 3,325,126 tons from British possessions; sailing vessels, 10,369,047 tons, and steam vessels, 12,324,116 tons; British vessels, 15,190,991 tons, and foreign, 7,502,172. Repeated voyages—*i.e.*, repeated entries—are included and counted.

RAPER'S NAVIGATION.—VI.

749. LIMITS OF THE DOUBLE ALTITUDE.

In 752, p. 902, *Nautical Magazine*, it was proved that

$$e = \frac{e}{\text{Sec } l. \frac{\sin (Z_1 + Z)}{15 \sin Z. \sin Z_1}}$$

By 615. Error of Hour Angle = Error of Alt. Sec *l.* Cos *c* Z
If *a* be put for Error of Alt at the greater bearing (*Z*₁)

$$\begin{aligned} e &= a. \frac{\text{Sec } l}{\sin Z_1} \\ &= a. \frac{\text{Sec } l}{\sin Z_1} \\ c &= \frac{\text{Sec } l}{\sin (Z_1 + Z)} \\ &= \frac{\text{Sec } l. \sin Z}{\sin Z. \sin Z_1} \\ &= \frac{a. \sin Z}{\sin (Z_1 + Z)} \end{aligned}$$

In order that the Error of Latitude should not exceed the Error of Altitude, the numerator of this fraction must be less than the denominator.

Hence the Difference of Bearings should exceed the less Bearing.

Again, let *a* be the error of Alt at the less Bearing (*Z*) and *D* the Difference of Bearings, then *Z*₁ = *Z* + *D*

$$c = \frac{a. \sin Z_1}{\sin D} = \frac{a. \sin (Z + D)}{\sin D}$$

But $\sin (Z + D)$ is less than $\sin Z + \sin D$

$$\text{Therefore } \frac{\sin (Z + D)}{\sin D} \text{ is less than } \frac{\sin Z}{\sin D} + 1$$

Hence, as before, the Difference of Bearings should exceed the less Bearing.

Again, $\sin Z = \sin (180^\circ - Z)$, therefore, when the Observations are on opposite sides of the Meridian for less Bearing read supplement of the less Bearing, or which is the same, the supplement of the Difference of Bearings should exceed the less Bearing.

The fraction $\frac{\sin Z}{\sin D}$ will be least when $\sin D$ is greatest, that is, when *D* is 90° .

Hence the difference of Bearings should be when possible 90° .

771.

From 749 we have

$$c = \frac{a \cdot \sin Z}{\sin (Z_1 + Z)}$$

Let $a = 1' \text{ or } 60''$

$$c = \frac{60 \cdot \sin Z}{\sin (Z_1 + Z)} = \frac{4}{\sin Z_1 \cdot \frac{\sin (Z_1 + Z)}{15 \sin Z \cdot \sin Z_1}}$$

$$\text{Prop Log } c = \text{Prop Log } 4'' + \text{Log } \sin Z_1 + \text{Log } \frac{\sin (Z_1 + Z)}{15 \sin Z \cdot \sin Z_1}$$

Hence the rule to find the Error of Latitude caused by 1' Error in one of the Altitudes.—To the Log 3.491 (Prop Log 4'') add the Log Sin of the Azimuth at that Altitude ($\sin Z_1$) and the Log from Table 71 $\left\{ \frac{\sin (Z_1 + Z)}{15 \sin Z \cdot \sin Z_1} \right\}$; the sum (rejecting tens) is the Prop Log of the Error required (Prop Log c).

770. Foot Note, p. 258.

See figure on p. 250 Raper's Navigation.

In the spherical triangle B Z P

$$\frac{\sin P}{\sin D} = \frac{\sin B Z}{\sin P Z} \quad (\text{The angle B is called Arc D})$$

$$\sin P = \sin D \cdot \sin B Z \cdot \text{Cosec } P Z$$

$$= \sin D \cdot \sin B Z \cdot \text{Sec } l$$

Hence the rule to find the Hour Angle when the Latitude is found.—To the Log Sin of D add the Log Sin of the outer Zenith Distance ($\sin B Z$) and the Log Sec of the Latitude (Sec l); the sum (rejecting tens) is the Log Sin of the Hour Angle corresponding or its supplement ($\sin P$).

$$\text{But } \cos P = \frac{\cos B Z - \cos Z P \cdot \cos B P}{\sin Z P \cdot \sin B P}.$$

Therefore $\cos P$ is positive or negative according as $\cos B Z$ is greater or less than $\cos Z P \cdot \cos B P$ or $\sin l \cdot \sin d$. Hence in a doubtful case take the sum of the Log Sines of the Declination and Latitude; if this is less than the Log Cos of the Zenith Distance, the Hour Angle is found; if greater, take the supplement.

$$\text{Also } \frac{\sin Z}{\sin D} = \frac{\sin B P}{\sin Z P}$$

$$\sin Z = \sin D \cdot \sin B P \cdot \text{Cosec } Z P$$

$$= \sin D \cdot \sin p \cdot \text{Sec } l$$

Hence the rule to find the Azimuth when the Latitude is found.—To the Log Sin of D add the Log Sin of the outer Polar Distance ($\sin p$)

and the Log Sec of the Latitude (Sec l); the sum (rejecting tens) is the Log Sin of the Azimuth or its supplement (Sin Z).

$$\text{But } \cos Z = \frac{\cos B P - \cos B Z \cdot \cos P Z}{\sin B Z \cdot \sin P Z}$$

Therefore Cos Z is positive or negative according as Cos B P is greater or less than Cos B Z. Cos P Z, or Sin d is greater or less than Cos B Z. Sin l. Hence in a doubtful case, add together the Log Sin of the Latitude (Sin l) and the Log Cos of the Zenith Distance (Cos B Z); if this is less than the Log Sin of the Declination, the Azimuth is found; if greater take the supplement.

886. AMPLITUDE.—TABLE 59 A.

Taking the principle used in proving 615 foot-note, p. 685, *Nautical Magazine*, if the line A C represent a Vertical Circle, then A B or G D is the Change of Altitude, D E is the Change of Azimuth, the angle E is the angle of Position, that is, the angle at the object between the Vertical and Declination Circles.

In the triangle D E G,

$$D E = D G \cdot \cot E$$

$$\text{or Change in Az.} = \text{Change in Alt.} \cdot \sec \text{Alt.} \cdot \cot E$$

When the object is in the Horizon, the spherical triangle A P Z, p. 144, Raper's Navigation, is quadrantal, A Z being 90°, and

$$\sin Z = \tan A \cdot \tan l$$

$$\text{or } \cot A = \operatorname{cosec} Z \cdot \tan l$$

But A of the spherical triangle A P Z is the same as E of the plane triangle D E G

$$\text{Therefore Change in Az.} = \text{Change in Alt.} \cdot \sec \text{Alt.} \cdot \operatorname{cosec} Z \cdot \tan l$$

$$= c \cdot \operatorname{cosec} Z \cdot \tan l \quad (\sec \text{Alt.} = 1)$$

$$= c \cdot \sec \text{Amp} \cdot \tan l$$

$$\text{If Ref} = 33' \text{ and Dip} = 4', c = 37' = \frac{37^\circ}{60}$$

Hence the rule for computing Table 59 A.—To the Constant 9.7901 ($\log \frac{37}{60}$) add the Log Sec of the Amplitude found and the Log Tan of the Lat; the sum (rejecting tens) is the Log of the Correction required in degrees.

When the Correction is more than 1°, it should be recomputed with the Corrected Amplitude.

Since the Observed Amplitude is taken when the object is below the Horizon, the Correction must be allowed to the *Right* of the Observed

Amplitude at Rising, and to the *Left* at Setting. In S. Let the reverse way.

898. AZIMUTH FROM THE SHORT DOUBLE ALTITUDE.

By putting P for $\frac{1}{2} (P_1 + P_2)$ and a for $\frac{1}{2} (a_1 + a_2)$ in 622, p. 688, *Nautical Magazine*, we have

$$\sin P = \operatorname{Cosec} (P_1 - P_2) \cdot \cos a \cdot \sin (z_1 - z_2) \cdot \sec l \cdot \sec d$$

By triangle $A P Z$,

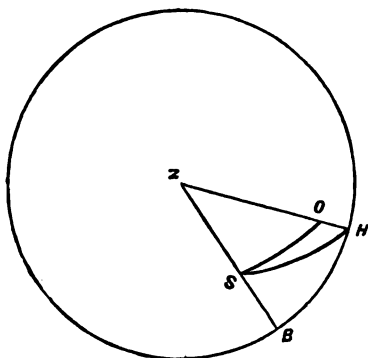
$$\frac{\sin Z}{\sin P} = \frac{\sin p}{\sin z} = \frac{\cos d}{\cos a}$$

$$\begin{aligned} \sin Z &= \frac{\sin P}{\sec d \cdot \cos a} \\ &= \frac{\operatorname{Cosec} (P_1 - P_2) \cdot \cos a \cdot \sin (a_2 - a_1) \cdot \sec l \cdot \sec d}{\sec d \cdot \cos a} \\ &= \operatorname{Cosec} (P_1 - P_2) \cdot \sin (a_2 - a_1) \cdot \sec l \end{aligned}$$

Hence the rule. — Add together the Log Sin of the Diff Alts $\{\sin (a_2 - a_1)\}$, the Log Cosec of the Interval $\{\operatorname{Cosec} (P_1 - P_2)\}$, and the Log Sec of the Latitude ($\sec l$); the sum (rejecting tens) is the Log Sin of the Azimuth ($\sin Z$) at the middle time from Noon nearly (because P has been put for $\frac{1}{2} (P_1 + P_2)$).

896. This is the same formula as in 676, p. 810, *Nautical Magazine*.

905. THE DIFFERENCE OF AZIMUTH BETWEEN A TERRESTRIAL AND CELESTIAL OBJECT.



Let the Circle represent the Horizon, Z the Zenith, S the Apparent position of the Celestial Object, and O the position of the Terrestrial Object transferred to the Celestial Concave. ZSB the Vertical through S , ZOH the Vertical through the Object O , then SB is the Apparent Altitude of S , OH the Apparent Altitude of O , SO the Apparent Angular Distance, SH the Required Angular Distance. The Difference between

SO and SH is the Correction of the Angular Distance arising from the point observed not being exactly on the True Horizon.

$$\text{Let } SH = D, SO = d, SB = A, OH = a$$

In the triangle Z S H, $ZH = 90^\circ$

$$\cos ZS = \cos H. \sin SH$$

$$\text{or } \cos H = \frac{\cos ZS}{\sin SH}$$

In the triangle S O H

$$\cos H = \frac{\cos SO - \cos SH. \cos OH}{\sin SH. \sin OH}$$

$$= \frac{\cos SO - \cos SH}{\sin SH. \sin OH} \quad (\cos OH = 1 \text{ nly})$$

$$\frac{\cos SO - \cos SH}{\sin SH. \sin OH} = \frac{\cos ZS}{\sin SH}$$

$$\cos SO - \cos SH = \cos ZS. \sin OH$$

$$\cos d - \cos D = \sin A. \sin a$$

$$2 \sin \frac{1}{2}(D+d). \sin \frac{1}{2}(D-d) = \sin A. \sin a$$

$$\text{But } \frac{1}{2}(D+d) = d \text{ nly, and } 2 \sin \frac{1}{2}(D-d) = \sin(D-d) \text{ nly}$$

$$\text{Therefore } \sin d. \sin(D-d) = \sin A. \sin a$$

$$\sin(D-d) = \sin A. \sin a. \operatorname{cosec} d$$

Hence the rule for the Correction of the Angular Distance arising from the point observed not being exactly on the True Horizon.—To the Log Sin of the Difference between the Altitude of the Terrestrial Object and the Apparent Dip ($\sin a$) add the Log Sin of the Celestial Object's Apparent Altitude ($\sin A$) and the Log Cosec of the Angular Distance ($\operatorname{cosec} d$); the sum (rejecting tens) is the Log Sin of the Correction of the Angular Distance $\{\sin(D-d)\}$.

When the Dip is less than the Altitude of the Object, *add* the Correction to the Angular Distance (because $\sin a$ is positive); when the Dip is the greater of the two, *subtract* it (because a is then negative and $\sin(-a)$ is negative).

In the right-angled spherical triangle S H B,

$$\cos SH = \cos SB. \cos HB$$

$$\cos HB = \cos SH. \sec SB$$

$$= \cos D. \sec A$$

Hence the rule for the Difference of Azimuths.—To the Log Cos of the Corrected Angular Distance ($\cos D$) add the Log Sec of the Celestial Object's Apparent Altitude ($\sec A$); the sum (rejecting ten) is the Log Cos of the Difference of Azimuth between the Celestial and Terrestrial Object ($\cos BH$).

When the Angular Distance exceeds 90° take the supplement of the Arc found as the Difference of Azimuth (because $\cos D$ is negative therefore $\cos BH$ is negative).

W. H. BOLT.

Nautical Academy, 10, King Street, Tower Hill.

WHO IS TO HAVE CONSTANTINOPLE ?

THE true position of the Eastern question is at length beginning to stand forth in a clear and unmistakeable light from amid the haze and intricacies with which it has hitherto been surrounded. We now scarcely require the clear and incisive judgment of Lord Derby to inform us that the Alpha and Omega of the whole business may be summed up in the words, "Who is to have Constantinople?" It is exceedingly unfortunate that the question of supremacy upon the shores of the Bosphorus has not been credited with the importance it deserves until the eleventh hour; but it is sincerely to be hoped that our country has not awakened too late to a sense of its own interests. Of late there has, unluckily, been manifested a strong disposition to regard the struggle between Turkey and her rebellious subjects merely as a conflict between might and right—as a gallant effort made by men who have suffered wrong, against the tyranny of their oppressors. In some measure this view has, no doubt, been correct, but it has not been borne in mind that it no more than half represented the case. The war which the Servians and Montenegrins have been waging against the Porte has been something more than a fight for freedom. It has been a war of races, embittered by religious animosity. It is a renewal of the old struggle for supremacy between Christianity and Islam—between Slav and Turk. But for this fact there can be little doubt that the quarrel would have been settled long since. Had the enemies of the Ottoman Government been limited to the population of Servia and Montenegro, they would, in all probability, have been reduced to subjection without causing any serious risk to the peace of Europe; but, unfortunately for Turkey, opponents have risen against her from all quarters. They have sprung from the ground like the warriors from the dragon's teeth sown by Cadmus, and although the original dispute was a matter in which outsiders could have no shadow of concern, they have thrown themselves into the contest with a degree of enthusiasm by no means inferior to that of the men directly interested in the affair. In discussing the merits of this last great misunderstanding between Turkey and her Slavonic subjects, it is highly essential to keep in view these broad facts of the case. The events which took place in Bulgaria a few months since, in addition to the effect they have had in weakening Turkey's moral position in Europe, have served in no small measure to place the whole position of affairs in a false light. An impression has gone abroad that the rising of the Slavonic provinces was the natural result of exceptional violence and oppression on the part of the Turkish Government. It is evident, however, that this was not the

case. During the present year we have heard of no serious oppression except in Bulgaria ; but it is clear that the outrages which took place in May last in that province arose from the employment of irregulars, who would not have been called out for duty had not the regular Turkish army been occupied in watching for a more general outbreak.

On reviewing the numerous and varied arguments that have been advanced, both for and against the action taken by the British Government in connection with recent events in Turkey, the main feature which strikes the attention is the persistence with which the true reason for England's interference is ignored. There is no lack of imaginary reasons on either side of the question. On the one hand it is urged that, as a matter of principle, we have no right to interfere—no right to coerce an independent nation—and that it is our duty to see that Turkey is not coerced by her powerful neighbours. On the other, it is maintained that we should assist our fellow Christians in wresting their liberty from Mahomedan oppression, and that, on principles of justice, it is our duty to see that justice is done to those who are unable to protect themselves. The true reason which lies at the bottom of the interest we take in the affairs of Turkey is put on one side as a fact which cannot well be aired alongside the loftier and more ideal motives. At times like these, however, it is highly important that plain facts should be called by their true names, and that we should disabuse our minds, as far as possible, of all ideal deceptions. It may be necessary for diplomatists to be guarded in their language, or even to dissemble by means of plausible, though fallacious, arguments. But when an entire nation takes upon itself to deal with an important question of foreign policy, as England has done during the late crisis, it is essential that the true bearing of the case should be thoroughly realised. We presume there are few Englishmen who would maintain that England would take any particular interest in Turkish affairs if India were not a British possession, or if Russian policy were not aggressive, or strongly suspected of being aggressive. This is the standpoint from which our Eastern policy is viewed by all European nations, and no man in his senses would contend that it is a false one. Yet this great truth, in spite of its importance, is constantly being set on one side as a matter for secondary consideration, while abstract principles of right and justice are dragged forward until we are fain to believe that the motives which guide our policy in the East are as purely disinterested as those which led Don Quixote to attack the wind-mills. As a rule, Englishmen are strongly impressed with the belief that their country has a great mission to perform in the world, and no doubt it is well, when virtue and policy coincide, to attach all due weight to the former ; but it must be remembered that what may be termed international virtue is generally a question of might. In the words of

Lord Beaconsfield, "there is no honour between Governments." As a matter of abstract justice, for example, it would be difficult to prove our right to the possession of India. We gained our footing there by the sword ; we have held it by the same means ; yet when Russia makes any movement which seems to indicate a disposition to draw closer to our great Eastern Empire, it is hard for an Englishman to believe that a grave moral wrong is not being committed. But it must be evident to the most obtuse understanding that Russians naturally regard the relations between their country and our own in a somewhat different aspect to this.

With regard to the Turkish question, which has perplexed European diplomatists for so many years, it is high time that we should come down from the cloudy region of sentiment and examine the position of affairs by the light of plain facts. There are certain truths in connection with Eastern affairs which may now be accepted without question. In the first place, it is evident that the Mahomedan power in Europe is on the decline ; in the second, it is equally apparent that Russia is using every means short of actual force to subvert that power as rapidly as possible. It must be admitted that circumstances are highly favourable to Russian designs. Not only the actual weakness and imperfections of the Sultan's Government, but the influence of race, and the wild enthusiasm that springs from a difference of religion, are alike conducive to the attainment of the end which Russia seems ever to keep in view. No great powers of discernment are necessary to enable us to see where all this must end, unless some obstacles are imposed to the spontaneous course of events ; and the question which naturally suggests itself is whether England has any interest in striving to save Turkey from being overwhelmed by her unwieldy neighbour. We should do well clearly to make up our minds on this point without further delay ; for unless foreign influence is brought to bear, the Russian flag will eventually be planted at Constantinople as surely as the morrow's sun will rise. We hear a great deal about Turkish bravery and the difficulties Russia would have to encounter when it came to a life-and-death struggle for the Moslem power on this side of the Bosphorus. And no doubt the Turks have shown themselves to be possessed of great powers of resistance in some of their bygone struggles with the Czar. But it must be remembered that the relative positions of Turkey and Russia have undergone a great change during the last twenty years. At the present moment Turkey may be said to be weaker than at any period of the present century, while with Russia the case is the reverse. While the one has been going from bad to worse, until her exchequer is exhausted and her credit utterly gone, the other has been developing her resources and thoroughly organising her offensive and defensive powers. When we take into

consideration the nature of the effort put forth by Russia during the Crimean war—the fact that by the construction of railways and the improved organisation of her armies, she is in a far better position to fight now than when for two years she held the allied armies of France, England, and Turkey in check—and the inability of the Turks to contend with any marked degree of success against such a force as the Russo-Servian army with which they have lately been fighting, it is impossible to entertain a doubt as to what would be the result if they ever found themselves engaged single-handed against Russia. The time has now arrived when England would do well to make up her mind as to her future course of action. Judging from the discussions which have lately taken place at public meetings throughout the country, and from the tone of the press generally, it would seem that the main point of the whole affair is being either lost to sight or pushed on one side as a disagreeable phase of the question. We hear a great deal of deprecation against “drifting into war;” but if anything is likely to land us in a war in spite of ourselves, it is indecision in the public mind on this point. There is no necessity for concealment or disguise. It is the business of diplomacy to clothe unpleasant facts in pleasant words; but in discussions at home, we cannot do wrong by laying aside all masks and coming to a clear and definite resolution. The question to be decided is whether we mean to fight for Turkey or Constantinople or not. England may continue for a time to ignore the necessity of finding a reply to this question, but that a reply will have to be given before many years have elapsed it is no longer possible to doubt. Like the ostrich, which endeavours to avoid pursuit by hiding its head in the sand, we may continue to deceive ourselves by talking wildly about the justice and necessity of driving the Turks out of Europe *en masse*—although, by the way, the justice of driving four millions of people from their homes and possessions is not so apparent to the ordinary mind as it seems to be to the “heroic” apostles of humanity who have recently been laying down theories for the settlement of Turkish affairs—we may declare plainly that England will no longer allow her power and influence to be used as props for the Turkish Empire with all its attendant evils; but if these are the principles which are to guide our future policy, we must be prepared to see Constantinople garrisoned by Russian soldiers. There are no two courses open. By whom is Turkish independence to be maintained if not by England? The Turks are clearly not in a position to save themselves; Austria might doubtless be satisfied by a share in the spoil that would be derived from the disruption of the Sultan’s dominions; while the petty Slavonic provinces, which we are told might now be utilised as barriers against Russian aggression, would be annihilated at the first outbreak of hostilities. Of

late these provinces have been playing a hazardous game as far as their own interests are concerned. It does not appear that they are at all anxious to be embodied with either the Russian or the Austrian Empire. Yet this is the result which must inevitably follow the downfall of the enemies with whom they have been contending. It would seem that religious animosity, difference of race, and vanity at finding themselves the centre of attraction for the attention of the whole civilized world, have caused them to lose sight of their own interests, and to persevere in a course of action which, if successful, could end only in their own destruction. In a word, they have been incurring the maximum of risk for the minimum of profit. Servia, who has been the prime mover in the disturbance, would no doubt have gladly withdrawn from the whole business some time since, but, unluckily for her, she is no longer able to control the impetus of the ball she has set moving. The war which she commenced without any apparent object soon developed itself into a war of religions and races—a kind of nineteenth century crusade, self-supporting, and, from a certain point of view, specious. Russia has certainly played her part cleverly during the last few months. Her statesmen evidently realize the true bearing of the Slav-Turkish question. She has made a convenient tool of the enthusiasm of her subjects, and while maintaining an outward show of neutrality, she has allowed and encouraged her people to make war under the Servian flag against the Porte.

Of late the chances have all been in favour of Russia. The wild outburst which followed the revelations in connection with the suppression of the Bulgarian insurrection has served in no small degree to strengthen her moral position, and to weaken that of Turkey, in the eyes of Europe. But especially must Russian statesmen have congratulated themselves as they saw the popular feeling in England turning aside to pursue the red rag of Bulgarian atrocities, and leaving Turkey to her fate. As an opponent of Turkey, Russia has appeared as the champion of justice, freedom, and Christendom, while the supporters of the Ottoman Government have been looked upon, in many quarters, almost as enemies of their species. With regard to the Bulgarian affair, sufficient allowance has not been made for the peculiar circumstances of the case—for the difficulties by which Turkey was surrounded at the time of the outbreak, and by the introduction of religious enmity into a political disturbance. It has been the custom of late to bring forward similar instances of Russian atrocities in Poland and Central Asia, in palliation of the conduct of the Turkish irregular troops in Bulgaria; but it is unnecessary to go so far afield as Russia in search of outrages of this description. During the Indian Mutiny, for example, the number of men, women, and children killed in cold blood was not far short of the numbers slain in Bulgaria by

Bashi-Bazouks and Circassians. These were not killed by any half-drilled barbarians, but by Englishmen, trained and drilled under the British flag. It is estimated that from 6,000 to 7,000 persons were killed in this way during the suppression of the mutiny—persons who were probably as innocent of any participation in the outbreak as though they had been New Zealanders. Those who have taken upon themselves to denounce Turkish outrages, would do well to study facts of this kind before they commence throwing stones. It is natural that men should have short memories for their own faults, but they should, at all events, strive to bear in mind that the memories of those around them may not be similarly deficient. It may be that two wrongs do not make a right, but when we find English soldiers shooting innocent women and children—and Englishmen, high in office, advocating the use of torture for Hindoos who have dared to fight for their liberty—we must be prepared to make some allowance for the conduct of half-savage Asiatics.

But what is most amazing is that men who profess to direct public opinion should be still harping on the Bulgarian outrages, and urging these as reasons for not supporting Turkey in the present crisis. Whatever force there may have been in such reasoning, a couple of months since, has now entirely disappeared. The designs of Russia are now apparent to the whole world, and the question to be decided is, not whether England will support Turkey, but whether she is prepared to allow Russia to march her troops into Constantinople. To judge from the arguments of our leading "agitators," it might be supposed that no such nation as Russia exists. For instance, a short time since, there appeared in the *Daily News* a letter of nearly two columns in length, written by Mr. E. A. Freeman, a gentleman whose name has been prominently to the fore throughout the recent discussions on Turkish affairs. In this epistle Mr. Freeman professes to argue the question closely—so closely, that his adversaries must "wince under" his reasoning. We shall not enter into his arguments beyond pointing out that from the commencement to the end of his lengthy letter, Russia is not once mentioned. The man who could settle the Eastern difficulty without taking Russia into consideration, would indeed possess a high talent for international politics; but when we see a problem solved without any heed being given to its most important factor, we naturally conclude that the train of reasoning is not remarkable, at all events, for its closeness. Fortunately, the country begins to show signs of taking empty declamations of the kind indulged in by Mr. Freeman and his followers at their true worth, and it is no longer necessary to give more than a passing notice to such idle nonsense.

Events now succeed each other so rapidly, that it is impossible for England to take up any position in the hope that it may be final. At

the moment of writing it would appear that some definite arrangement has been made between Russia, Germany, and Austria. If this be the case, we can do no more than wait and watch the development of the scheme upon which the three Powers have agreed. But in the meantime it behoves us to determine upon our course of action in the event of the Ottoman Government being threatened with destruction. The Turks will certainly fight to the death, even though all Europe be arrayed against them ; but if they are left unsupported, there can be little doubt as to what will be the final result of their struggles. But are we to stand calmly by whilst they are being defeated, and while Constantinople passes into Russian hands ? We cannot think so. Of the merits of Constantinople for strategical purposes it is not within our province to speak ; but with regard to its importance from a commercial and maritime point of view, there can be no two opinions. It is perfectly natural that Russia should cast longing eyes upon the shores of the Bosphorus, but Russian statesmen should be given to understand that England will not, unless compelled, allow Constantinople to be transferred from Turkish to Russian rule. The sensational ravings of a few English enthusiasts may have lulled the Government of the Czar into the belief that England will no longer support her old ally ; but if they go so far as to act on the convictions thus formed, they will find that British denunciation of the Turk is not to be measured in breadth by its loudness. This is a matter with which there should be no dallying. The time for smooth language has passed away, and Russia must be made to see that England has weighty reasons of her own for maintaining the Turkish rule. The possession of Constantinople by Russia would have a fatal influence upon British *prestige* and influence in the East, and this is a fact which we cannot too clearly recognise. The capital of Turkey is the capital of eastern Europe. As a commercial centre, its position rivals that of any town upon the face of the earth ; it is the veritable key to the East—the point upon which the commerce of all Asia and eastern Africa may eventually be made to converge.

These, in our opinion, are the really important phases of the Eastern Question ; and these are the considerations which have constrained us to discuss that which, at the first glance, would appear to be a purely political matter. The possession of Constantinople is a question which bears directly upon British maritime interests. As long as the Turks can maintain a footing there, England is not called on to interfere ; but, unless we are watchful, we shall find the Turkish capital gliding into Russian hands. Such a transfer would do more than anything to weaken our maritime supremacy and to threaten our hold upon India. It is a change which we must resist by every means in our power. The real danger is that we shall lose sight of the main point in the confusion of

minor considerations. By many of our countrymen it is urged that Russia should be permitted to obtain a footing in Turkish dominions with a view to protecting the Christians from oppression. But whatever may be the feelings of Russians themselves in the matter, it is quite certain that any plea of this kind put forward by the Russian Government will be nothing more than a pretext for territorial aggrandisement. At present, the Servians and Montenegrins enjoy much greater freedom than they would if they were Russian subjects. It is idle to talk about the interest of a despotic state like Russia in the cause of freedom. It is not many years since three-fourths of Russian subjects were living in a state of absolute slavery ; yet we now see the Russian Government paraded as the friends of freedom—as the protectors of the wronged and oppressed. The supporters of the most absolute form of tyranny which any European nation presents, must smile sardonically when they hear themselves designated as liberators, and as they watch the Slavonic subjects of the Porte busily weaving a net for their own destruction.

Russian dreamers have marked out a great future for their country. In their imaginations they see the Slavonic element predominant in Europe, but events will probably make known to them the fact that the time for the fulfilment of their dreams is yet a long way distant. And if there is to be a struggle for supremacy between England and Russia, the best policy for the former is clearly not to wait until Turkey has been prostrated, but to step forward at the first intimation of a Russian advance. If Russia fights, it will be—not for reforms that can be obtained without her interference—but for her own aggrandisement, and England must act accordingly.

WRECK COMMISSIONER.—The Lord Chancellor has appointed Henry Cadogan Rothery, Esq., to be a Wreck Commissioner for the United Kingdom, in pursuance of the provisions of "The Merchant Shipping Act, 1876."

NEW TRAINING-SHIP FOR THE NAVAL RESERVE.—It is the intention of the Admiralty to moor a ship in Southampton Water for the purpose of training men belonging to the Naval Reserve. The ship will be anchored as near the Royal Pier as possible without interfering with the traffic of the river, and made fast fore and aft so as not to swing with the tide. The object of the new training-ship is to clear the Reserve men out of the *Hector*, which will be then retained exclusively for Coastguard service. The *Trincomales* is the ship which has been selected. It is at present stationed at Hartlepool, and is of 1,447 tons displacement.

CORRESPONDENCE.

DISCIPLINE IN THE MERCHANT SERVICE.

To the Editor of the "Nautical Magazine."

SIR,—I have read with much interest the letters and remarks which have appeared during the last few months on the above subject, in your valuable Magazine. To my mind the subject has not received the attention it demands, and to which it is entitled; for how is it possible to have a seaworthy ship if we have not at the same time a crew also seaworthy.

Allow me to say as one who has some knowledge of seafaring people, having been amongst them from a child, and having also gone through all the grades at sea, that the only remedy for the present state of things in the merchant service in my opinion is that hit upon by your correspondent in the August number, "W. P."

Such suggestions as court-martials and placing men in irons when it is their watch below, and making them do their duty in their watch on deck might do for men-of-war and ships like the old Indiamen, ships full of men and officers; but such modes at the present time in nine-tenths of British ships I am certain would be of no real good.

No, the point to be impressed upon the minds of the men is, that though there is not a policeman at sea or in a foreign port to whom to give them in charge, yet that when they commit an offence or break any one of the laws, punishment will surely and certainly follow when the ship arrives in England. If the law according to the different Acts, which is given in the official log-books and which is all but a dead letter for want of a ready means of application, were carried out strictly for one year, it would do more to improve the conduct of the men in the merchant service than all the new laws and alterations they can make in Parliament for the next ten.

It may be said then why not apply the laws; but those who know the business of a shipmaster when he comes on shore must be aware that when he comes to the shipping-office to pay the men, they always object to have any fines or forfeitures deducted from their wages, though they might be quite legal and in accordance with the log-book. The men know that superintendents have no power to enforce the law, and so to save further trouble and expense of appearing in the police-courts, the master pays the men all their demands and perhaps gives a V.G. into the bargain.

I think, Sir, that in all cases between master and men which involve only fines and forfeitures, and where the log-book is properly kept and

attested, a court might be formed by the Superintendent and other members of the Marine Board to decide all such cases, whose decisions would be binding upon all parties.

I am, yours respectfully,

S.S. *Anne Smith*, October 7, 1876.

C. G.

WINDMILL PUMPS.

To the Editor of the "Nautical Magazine."

SIR,—Amidst the anxiety shown respecting the safety of our mercantile seamen, and which has borne fruit in the Merchant Shipping Act, 1876, one of the most economical, and, I think, most obviously advantageous contrivances as yet introduced for the saving of the ship herself, and therefore of her crew also, has scarcely received the attention it deserves—I mean the windmill pump.

The cost of this appliance is, for a vessel of 800 tons, about £40. The sails of the mill for such a vessel would be about 6 ft. long, each fixed to a revolving head upon a standard, consisting of two half timbers, between which the pumps work, connected by a rod and crank with the sails. The pump stands very conveniently under the mizen-stay, and as the pump's sails may be unshipped, they do not necessarily interfere with the use of the mizen-staysail, unless the pump be running; indeed, the standard may be made to let down on deck, and so to be completely out of the way when not in use.

It may be readily understood that the more strongly the wind blows, the more effectively the pumps work, so that in such weather as causes a ship to strain and make water, the hold is sucked dry, and the crew kept free from the fatigue and depression which attend continuous working at the pumps, and often induce desertion of the ship—in short, the experience of those sailors whose ships are furnished with these pumps is that in heavy weather they are invaluable.

It may be asked why, if this contrivance be so effectual, these pumps are not universally applied to ships whose size admits of them? The answer to this is, I believe, that many owners object to their appearance as indicating a leaky ship. This feeling was, until very recently, so strong, that owners of low-class ships in the timber trade were exceedingly unwilling to adopt them. A large proportion of that class of shipping has, however, now become furnished with these pumps, but it is important to the lessening of maritime risks that the better-class shipping should also have them, for casualties, in which safety depends upon the pumps, are quite sufficiently frequent amongst those vessels, and every precaution ought to be taken, even in the case of the very

best ships. I may mention the case of a vessel proceeding from Quebec to this country with timber, and which struck upon the rocks called the Traverses, about fifty miles below Quebec, and remained there during the whole night. The bottom was much torn and damaged, so that the vessel leaked at the rate of 14 in. per hour, but by means of her wind-mill pump she was safely brought across the Atlantic during stormy weather, and reached her destination, an East Coast port, in the month of November, having used her hand-pumps only when the wind lulled. Instances of this nature might be stated almost *ad infinitum*, and so, I am sorry to say, might instances of loss and abandonment, too often of loss of the entire crew, which would unquestionably have been prevented by a windmill pump.

I ask, therefore, whether this would not be a very proper subject for the action of our Government. We have much legislation on the subject of shipping of a character at least questionable, but here is a matter for interference which could only be beneficial.

I am, Sir,

Yours respectfully,

Hull, 17th October, 1876.

J. A. WADE.

SCURVY.

To the Editor of the "Nautical Magazine."

SIR,—In the July number of your Magazine is an article on Scurvy, which I have read with much interest, and which in its relation to long voyage sailing ships and their crews, is worthy the attention of both shipowners and masters of the Mercantile Marine.

I have no intention of going through the whole article for the purpose of commenting thereon, but will give an idea of what I think might be very properly adopted on long voyages in the matter of feeding or providing healthy provisions for crews.

I may premise that my experience has been long and varied as a commander, that during my early voyaging to India, as a boy, I have seen as many as eighteen of the crew laid up—or down—and unfit for work on arrival at Bombay through scurvy, and that I have had experience of more or less cases of it since then on voyages to and from India, China, Mauritius, and the West Coast of America; and I have given the subject a good deal of attention and thought.

There can be no doubt that the less frequent occurrence of scurvy of late years, as compared with former years, is due in a great measure to the causes you mention—viz., quicker voyaging, improved habits of cleanliness amongst the men—encouraged and required by an improved class of

commanders—and a better dietary; but as regards the latter, I think, a good deal more might be done, and at little, if any more cost; in proof of which, I will show what I did on one of my last sailing voyages to India, some years ago. My then employer was a man who gave me *carte blanche* in the management of my ship and crew as regards provisioning, or any measures that tended to the well-being of my crew, and he permitted me to take as much fresh meat in tins as I pleased.

On the particular voyage to which I refer now, I took half salt and half tinned beef and mutton; I also took a quantity of compressed vegetables. I gave my crew salt and fresh meat on alternate days, and the days on which they had fresh meat I gave a certain quantity of the compressed vegetables, with which, and the liquid about the meat, my men had a very nice and very savoury mess indeed, and as they were having butter served out to them weekly, they go on famously, the men declaring they never were so well off in their lives in the matter of food; and I had the satisfaction of finding that I never had so healthy a crew in the course of my experience.

As to the cost. The first cost of the tinned meat was, I think, 6d. per lb., and, as well as I can remember, the salt beef was 180s. per tierce, the pork at a proportionate rate. Now, as there are no bones in the tinned meat, the men were quite willing to have a less weight of that than of salt beef, when the proportion of bone is about 15 per cent.; besides which, the salt meat is served out from the harness cask, raw and briny, while the other is ready cooked and may be eaten cold or warmed-up at one's pleasure or caprice.

The money's-worth of compressed vegetables required to give a nice mess to twenty-six men—I allude only to the fore end of the ship—was just 7d. each day, or for the whole crew about 8d.—say, 2s. a week: 26s. for the passage to Calcutta, and 26s. home.

I have very little doubt that if something like this system were adopted on long voyages in the feeding of crews, there would be fewer cases of scurvy.

I think that another fruitful cause of scurvy is want of cleanliness, not alone in the place where men live, or because of the foul air from bilge water, or from cargo, but because of the insufficient supply of water, whence it is impossible that men can keep their clothes or their persons clean.

I presume that a clean skin, inducing a healthy action, is as essential to the preservation of the general health, the purity of the blood, and, consequently, the warding off of scurvy, as wholesome food and fresh, pure air. Now, too many shipowners make no provision for a liberal supply of water, and in that, as in the question of provisions, are too ready to avail themselves of the *letter* of the law, pure and simple; and, indeed,

I have known cases where it was understood that rain-water was to be got, whenever possible during the voyage, so as to save putting on board, when leaving home, more than the bare quantity to serve the passage at three quarts per man per day. Of course when the Act was framed, by which the allowance of water was to be three quarts per day, it is well known, or at least it is reasonable to assume, that the intention of the framers was not that that shall be the quantity allowed, under all circumstances, and no more, any more than that men were to be strictly confined to the dietary scale.

It was intended to be the minimum quantity, and I can safely say that if any of the gentlemen who had to do with the framing and passing of that portion of the Merchant Shipping Act had voyaged through the tropics a tithe of the times that I have, they would have known from bitter experience that three quarts of water was not sufficient for any man for twenty-four hours. There is the breakfast coffee, the evening tea, the mid-day soup (when he gets it), the drinking water—as much as he can afford—then where is the daily, or even weekly, washing water to come from?

Salt water won't clean the skin, no matter what quantity of marine soap a man may use, after working even on board a ship on a broiling hot day in the tropics, or anywhere else in fact.

I hold, therefore, that an improved dietary, such as I have indicated, and which if judiciously managed would cost little, if any more, than the plainest of plain salt beef and pork, would, with a liberal supply of fresh water by which men could keep their persons and their clothes clean, tend very much to keep the crews in good health, and, what is of as much importance, good spirits; there would be fewer cases of scurvy, even though the supply of lime-juice were scant or of inferior quality.

I by no means disparage lime-juice; on the contrary, I have experienced its great usefulness, and could say much in its favour if it were necessary.

Hoping you will forgive my trespassing so much on your time,

I remain, Sir, yours faithfully,

SHIPMASTER.

Greenock, September 25, 1876.

BOOKS RECEIVED.

General Rules for Formal Investigations into Shipping Casualties and Courts of Survey. London: Pewtress & Co., 15, Great Queen Street, W.C. 1876.

THIS little book, price Sixpence, is carefully printed, and combines in good type and in a handy form the General Rules for Formal Investigations into Shipping Casualties, the General Rules for Courts of Survey in the United Kingdom, a List of Courts, Judges, and Registrars, together with Lists of Assessors Approved by a Secretary of State under Section 80, and of persons periodically nominated by Local Marine Boards under Section 7. We have published this very cheap and complete edition for the benefit of our subscribers, for whose convenience it is pagged to run on with Mr. Ilbert's book.

Statistiques Nationales.—Navigation Maritime. 1. *Jaugeage des Navires.* By A. N. Kiaer and T. Salvesen, published by the Central Statistical Office of the Kingdom of Norway, Christiania. 1876.

THIS work is the first outcome in regard to maritime matters of the International Statistical Congress. Its object is to show the practice adopted in all important maritime countries in regard to the admeasurement of tonnage. It is a work of considerable value and will no doubt tend to bring about that international uniformity which is so desirable in connection with this and other subjects relating to ships. We are not surprised that the Editors have encountered many difficulties in their task, but this satisfactory accomplishment of their work will we hope encourage them to proceed with the other international comparisons which they propose to publish in succeeding volumes.

Tables for facilitating Sumner's Method at Sea. By Sir William Thomson, D.C.L., LL.D., F.R.S.

WE cannot but admire the ingenuity and mathematical talent displayed in the method now proposed by Sir William Thomson, and also in the construction of the tables. But truth compels us to state that our admiration of the work must cease there. Indeed, we are surprised that so much talent and ingenuity should have been expended on a problem which admits generally of such an easy solution, and by means of any of the usual epitomes in daily use by navigators.

It appears that the author has endeavoured by the method now proposed to disguise the problem as much as possible; and instead of it

appearing to the navigator as a plain straightforward question, easy of solution, it would appear to the plain sailor as something very mysterious.

In the preliminary rules, the author states :—"Find the hour angle at Greenwich." We would ask him, how is that to be done without a chronometer on board? But, even then, "by applying the probable longitude," you are to obtain the probable hour angle at ship. This appears to us to be what the sailors would designate as a very left-handed affair.

The next process, as directed, is rather complicated. You are directed to look in the tables for a position midway between two numbers above and below the half-estimated co-latitude. Level with the position so found, and in one of the columns, headed "co-hyp," place the end of one leg of a pair of compasses, and search from column to column until two numbers are found both in a column headed "co-hyp," given by the end of the other leg at equal distances, below and above the centre position, one of which agrees approximately with the declination, and the other with the altitude; the numbers level with these on the right-hand side, in the contiguous column, headed A, are approximately the hour angle at ship and the azimuth. But "the opening between the legs of the compasses may be varied; it is only necessary that the same distance be taken above and below the level of the estimated half co-latitude."

But you require to take two sets of values thus obtained from the tables of the declination—the altitude, the hour angle, and the azimuth. And then interpolate by proportion or parts the values of the altitude, the hour angle, and the azimuth, corresponding to the declination, and obtained from the *Nautical Almanac*. This interpolation is always known to be a terrible bugbear among seamen generally, and not likely find any favour with them.

From the hour angle thus obtained by interpolation, you are to find the longitude by the chronometer—that is, if you have one on board, and thus you will obtain the ship's position on the chart by the intersection of what the author is pleased to call "the Sumner lines."

We feel very confident in saying this method will not find any favour with practical men; we look upon it as a very pretty puzzle for the amusement of amateur navigators. We must confess the solution proved a puzzle to us for some considerable time.

We remember, in our early days, when it was the custom to use linear tables for the purpose of clearing the linear distances, in tracing along the lines, when the ship was lurching heavily, if the dividers and the books did not all go flying away to leeward together, we were sure to be compelled to commence again, and frequently with sundry excla-

mations and good wishes for the innocent inventor of such tiresome and puzzling tables.

We think it to be a great pity that the author of this method should have mixed up longitude with the Sumner's method, for, in common with all the varieties of the double altitude problem, Sumner's method, "*per se*," can only afford the latitude, and it should be restricted to that alone, in order that it be not likely to deceive the unwary.

AN alphabetical list of German merchant vessels officially registered as carrying the national flag has just been published in Berlin. It shows the total number of such vessels to have been 5,094 in January last.

FOG SIGNAL AT HELIGOLAND.—The Trinity House, London, have given notice that a fog-signal will be established at Heligoland, which will, during foggy weather, produce by the explosions of gun cotton a report similar to that of a gun, every 15 minutes. This novel method of producing a sound signal is we believe only experimental at present.

TRADE AND NAVIGATION RETURNS.—From the Board of Trade returns for the month of September, we gather that the total declared value of exports for the month was £17,777,917, against £19,853,750 in 1875. and £21,463,876 in 1874. With regard to the Shipping Trade, it appears that in the month of September last the tonnage of vessels employed in the trade to foreign countries was :—Entered inwards, 1,579,233 ; cleared outwards, 1,641,305 ; against 1,495,202 tons and 1,623,856 tons respectively for the same month in 1875.—In the trade to British Possessions, 409,589 tons were entered inwards and 369,110 cleared outwards, against 410,144 tons and 360,536 tons in September, 1875. In the general Coasting Trade, 2,117,752 tons of British and 7,098 tons of foreign shipping entered inwards during the month, against 1,991,865 tons British and 83,026 tons foreign in September 1875. The clearances consisted of 1,884,399 tons British and 10,485 tons foreign, against 1,898,358 tons British and 8,594 tons foreign in 1875. The intercourse between Great Britain and Ireland was represented by 897,977 tons British and 684 tons foreign entered inwards, against 788,272 tons British and 1,033 tons foreign last year ; and 784,502 tons British and 653 tons foreign cleared outwards, against 686,761 tons British and 541 tons foreign last year. The grand total in the Coasting Trade for the month was 2,124,850 tons entered and 1,894,884 tons cleared, against 2,024,891 tons entered and 1,846,952 tons cleared in September, 1875.

MONTHLY ABSTRACT OF NAUTICAL NOTICES.

No.	PLACE.	SUBJECT.
218	IRELAND—East Coast—Kish Bank—Vanguard Wreck	Alteration in Light.
219	NORTH SEA—Heligoland	Establishment of a Fog-Signal.
220	UNITED STATES—North Carolina—Charleston Harbour	Re-Establishment of Main Light and Range Light.
221	NORWAY—West Coast—Aas Vær—Anders-bak Island	Establishment of a Light.
222	AUSTRALIA—East Coast—Sandy Cape	Marks for clearing Sandy Cape Shoal.
223	AUSTRALIA—Inner route to Torres Strait	Establishment of Beacons.
224	AUSTRALIA—Inner route to Torres Strait—False Orfordness	Discovery of a Sunken Reef.
225	NORWAY—West Coast—Vanelos fiord—Frekø	Establishment of a Light.
226	FRANCE—North Coast—Treguier River Entrance—La Corne Rock	Establishment of Harbour Light.
227	ENGLAND—West Coast—Graasholm Island	Reported Sunken Rock.
228	CAPE VERDE ISLANDS—St. Jago—Quail Island	Establishment of Lights.
229	SOUTH AMERICA—Chili—Toro Point	Dangers off Toro Point.
230	AFRICA—East Coast—Mozambique Harbour	Establishment of Lights.
231	ENGLAND—East and South Coasts	Fog-Signals.
232	NEWFOUNDLAND—Notre Dame Bay—Toulinguet Island	Establishment of a Light.
233	NEW ZEALAND—Middle Island—Cape Foulwind	Exhibition of the New Light.
234	NEW ZEALAND—North Island—Ahuriri Road—Port Napier	Limit of Light on East Side of Entrance.

NAUTICAL NOTICES.

218.—IRELAND.—*East Coast.*—*Kish Bank.*—*Vanguard Wreck.*—The light-vessel moored to the eastward of the wreck of H.M.S. *Vanguard*, off Kish bank, has been replaced by another light-vessel. The present light-vessel, which is painted green, exhibits (as heretofore) a *revolving green light every minute*; a gong also is sounded in thick or foggy weather. The vessel is in other respects similar to the former, but has only *one* mast, instead of three.

219.—NORTH SEA.—*Heligoland.*—A fog-signal has been established at the extreme north-west end of Heligoland, 165 feet above high water. The signals will be explosions of gun cotton, giving a report similar to that of a gun, *every fifteen minutes*.

220.—UNITED STATES.—*North Carolina.*—*Charleston Harbour.*—A light is now exhibited from a lighthouse recently erected on the south end of Morris island, south side of the entrance to Charleston harbour. The light is a *fixed white* light of the first order; it is elevated 152 feet above high water, and should be seen 18 miles. The light tower is

150 feet high, and painted with black and white bands. Position, approximately, lat. $82^{\circ} 41' 54''$ N., long. $79^{\circ} 52' 29''$ W. Morris island Range beacon lights have been altered from fixed white lights to *fixed red* lights.

Note.—The Main Ship or Pumkin hill channel is shifting to the southward and shoaling.

221.—NORWAY.—*West Coast.*—*Aas Vær.*—*Anders-bak Island.*—A light is now exhibited from a lighthouse on Anders-bak island, the north-easternmost of the Aas Vær group. The light is a *fixed white* and *red* light, of the fourth order. It shows *white* between the bearings of E. by S. $\frac{1}{4}$ S., through south to W. by N. $\frac{1}{4}$ N.; *red* between the bearings of of W. by N. $\frac{3}{4}$ N. and N.W. by W. $\frac{1}{2}$ W.; and *white* from N.W. by W. $\frac{1}{2}$ W. to N. by E. $\frac{1}{4}$ E. The bearing E. by S. $\frac{1}{4}$ S. leads northward of the north-westerly rocks of the Aas Vær; the bearing W. by N. $\frac{3}{4}$ N. leads southward of Synst islet, and the bearing N.W. by W. $\frac{1}{4}$ W. leads north of Donnæsö, but south of Udöebö shoal. The light is elevated 50 feet above the sea, and should be seen 11 miles. The lighthouse is built of white concrete. Position, lat. $66^{\circ} 15' 45''$ N., long. $12^{\circ} 19'$ E. The light will be exhibited from the 15th of August to the 30th April.

Directions.—In approaching Anders-bak island from seaward, do not bring the light to bear more southerly than S.E.; this bearing will lead southward of the Træ islands, and of the foul ground lying south-west of Lovunen. Vessels may pass close to the northward of Anders-bak island, and when the light is passed may anchor in 20 fathoms on a bank of soundings close east of the island, whence a course may be shaped to enter the harbour of Vær.

222.—AUSTRALIA.—*East Coast.*—*Sandy Cape.*—Some doubts having arisen as to the distance which Bare hill should be kept open west of the bush on Bush patch, in order to pass between Sandy Cape shoal and Breaksea spit, mariners are hereby advised that when a vessel is on the lie shown on the chart as leading to the westward of the shoal, the relative positions of the bush and Bare hill will be just the reverse of those for leading to the eastward, *see* view D on Admiralty Chart, No. 345. Care should be taken not to bring the marks for leading westward of the shoal on until the vessel is about 4 miles northward of Sandy cape, as within that distance they lead close to the outer edge of Breaksea spit.

Note.—Except in case of absolute necessity, however, vessels should pass to the eastward of Sandy Cape shoal.

223.—AUSTRALIA.—*Inner Route to Torres Strait.*—Young island: A beacon has been erected on the north-west side of Young island. *m* reef: The beacon on *m* reef near Cape Grenville has been removed. *k* reef, Piper islands: The beacon on the north-east end of *k* reef has been removed.

224.—AUSTRALIA.—*Inner Route to Torres Strait.—False Orfordness.*—A sunken reef lying 5 miles E.S.E. from False Orfordness, and near the course recommended on the chart, has been found by Mr. Pearn, master of the schooner *Io*. This reef (*Pearn reef*) has a depth of 12 feet at low water, and lies with Halfway island, centre, bearing N.N.E.; Boydong cays, centre of southernmost islet, S.E. $\frac{1}{4}$ E. These bearings place the reef in lat. $11^{\circ} 25' S.$, long. $142^{\circ} 57' \frac{1}{2} E.$

225.—NORWAY.—*West Coast.—Vanelos Fiord.—Frekø.*—A light is now exhibited from a lighthouse on the western part of Frekø. The light is a *fixed white* light, visible between the bearings of S. by E. $\frac{1}{4}$ E. (through east, north, and west) and W. by S. $\frac{1}{3}$ S., except between the bearings of S.E. $\frac{1}{3}$ S. and S.E. by E., also W. $\frac{2}{3}$ N. and W. $\frac{1}{4}$ S., where it shows *red*. The light is elevated 68 feet above the sea, and should be seen 11 miles. The bearing S. by E. $\frac{1}{4}$ E. leads west of the sunken rocks outside Kvamso (with the exception of Ristofluen) and east of Svartskjøer. The bearing S.E. $\frac{1}{3}$ S. leads clear of the sunken rocks lying north of Staalet. The bearing of W. $\frac{3}{4}$ N. leads north of Terneskjærboen near the north-east point of Haugsholmen. The bearing W. $\frac{3}{4}$ S. leads north of Bleka and Nystölfluerne. In the direction of Nystol the light is partly hidden, especially for small vessels, by the high part of Frekø east of the light. The lighthouse is painted white. Position, lat. $62^{\circ} 10' 30'' N.$, long. $5^{\circ} 22' 40'' E.$ The light is exhibited from the 1st of August to the 15th of May. There is good anchorage between Frekø and Haugsholmen, also east of Haugsholmen.

226.—FRANCE.—*North Coast.—Treguier River Entrance.—La Corne Rock.*—A harbour light is now exhibited from a lighthouse on La Corne rock, each side of the entrance of Treguier river. The light is a *fixed* light, showing sectors of *green*, *red*, and *white* light as follows:—*Green* on a W.S.Wly. bearing, embracing an angle of $7\frac{1}{2}^{\circ}$, or between the Small Pen-ar-Guezec and the shoal of Port Beni; *red* eastward of the green sector; and *white* on an E.N.Ely. bearing, embracing an angle of $7\frac{1}{2}^{\circ}$. The light is elevated 38 feet above high water. The green light should be seen 4 to six miles. The tower is of masonry, 63 feet high. Position, lat. $48^{\circ} 51' 20'' N.$, long. $9^{\circ} 10' 40'' W.$

Directions.—Vessels entering Treguier river should steer with the light of Point de la Chaîne in line with the light at St. Antoine bearing S.S.E., until the green light of La Corne is seen, then steer for La Corne light, keeping within its green sector. Pass a short distance westward of La Corne rock and anchor within the white sector of light, which marks the inner anchorage.

227.—ENGLAND.—*West Coast.—Grassholm Island.*—In consequence of a sunken danger having been reported to lie half a mile N.E. of Grassholm island (near the entrance of Milford haven), on which it

was stated the steamship *Mersey* struck and was lost in August, 1876, a survey has been made of the locality by directions of the Lords Commissioners of the Admiralty, and no indication of sunken rocks farther off any part of Grassholm island than 200 yards could be found. A rock which dries 2 feet at low water spring tides was found 130 yards off the north east part of the island, with a depth of 6 fathoms inside. On the island side of this rock is the wreck of a large iron vessel (probably the *Mersey*), lying on her side, the masts being towards the island. There is a depth of 6 feet over the wreck at low water.

228.—CAPE VERDE ISLANDS.—*St. Jago*.—The following lights are now exhibited at Porto Praya, viz. :—

(1.) Quail Island, South Point: A *fixed white* light, elevated 85 feet above high water, visible in clear weather 5 or 6 miles. The light tower is white, 14 feet high, and surmounted by an iron tripod, the top of which is 41 feet above the ground.

(2.) Quail Island, North Point: A *fixed red* light, elevated 65 feet above high water, which should be seen 2 miles. The lantern is on the roof of a red house, 23 ft. high, standing between two detached buildings.

(3.) Mole of Praya: A *fixed red* light at the new landing-place, visible only a short distance.

Caution.—These lights are the property of a private company, and cannot always be depended upon.

229.—SOUTH AMERICA.—*West Coast*.—*Chili*.—*Toro Point*.—Information has been received from Mr. Mossop, master of the British barque *Coronilla*, that the rock reported to lie N. by W. $\frac{1}{2}$ W. 8 miles from Toro point, but the existence of which was doubtful, has again been seen, the *Coronilla* having passed within $1\frac{1}{2}$ cables of that danger. This rock (*Coronilla rock*), upon which the sea seldom breaks in fine weather, has an estimated depth of 4 feet at low water. Position, lat. $33^{\circ} 43' 10''$ S., long. $71^{\circ} 48' 43''$ W. The Chilian Government has given notice of a reef about 4 cables long in an east and west direction, and $2\frac{1}{2}$ cables broad, in a position distant nearly $1\frac{1}{2}$ miles, N. $\frac{1}{2}$ E. from Toro point.

230.—AFRICA.—*East Coast*.—*Mozambique Harbour*.—In accordance with a previous Nautical Notice on the intended exhibition of lights at Mozambique harbour, the under-mentioned lights are now established, viz. :—

(1.) St. George Island: A *fixed white* light, exhibited from a square tower a little south of the flagstaff near the north-east part of the island; it is 66 feet above high water, and should be seen 15 miles.

(2.) St. Sebastian: A *fixed red* light, visible seaward between the bearings of S.W. $\frac{1}{4}$ S., and N.E. $\frac{1}{4}$ N.; it is shown from an iron scaffolding attached to the flagstaff on Fort St. Sebastian, is elevated 74 feet above high water, and should be seen 12 miles.

(8.) Cabeceira Grande: A *fixed white* light, visible over the south channel and up the harbour; it is shown from an iron scaffolding on a stone basement near the white house; it is elevated 85 feet above high water, and should be seen 12 miles. Position, as given, lat. $14^{\circ} 58' 20''$ S., long. $40^{\circ} 45' 10''$ E.

(4.) Custom House Pier: Two *green* lights, 19 feet above high water, are shown from the pier.

Directions.—South Channel: On sighting the light on St. George island, steer to the southward of it until St. Sebastian (red) light bears N.W. $\frac{3}{4}$ N.; keep St. Sebastian light a little on the starboard bow until Cabeceira Grande light bears N. by W. $\frac{1}{2}$ W., steer on that bearing for Cabeceira Grande light until the Custom House pier (green) lights come in sight, the course may then be altered gradually to the westward, and when St. Sebastian light is lost sight of, steer for the Custom House pier lights and thence into the anchorage. North Channel: Steer for St. Sebastian light on a N.W. by W. $\frac{3}{4}$ W. bearing until Cabeceira Grande light bears N. by W. $\frac{1}{2}$ W., thence proceed as before directed to the anchorage. Buoys: North and south channels are marked by black buoys on the starboard-hand (entering), and red buoys on the port hand. Caution is necessary, as considerable alterations in the channel are caused by the rapid tides which run in Mosambique harbour. Vessels of large draught should use the north channel only. Pilots may be obtained by making the usual signal.

231.—ENGLAND.—*East and South Coasts.*—In accordance with previous notice, on the intended establishment of fog-signals on the coast of England:—

Spurn light-vessel, Humber river entrance: A powerful fog-horn has been established. Two blasts in quick succession are sounded *every two minutes*.

Shambles light-vessel: A fog-signal has been established at the Shambles light-vessel, and gives one blast *every two minutes*.

St. Catherine Point: The character of the fog-signal at St. Catherine Point, Isle of Wight, has been altered from one blast every fifteen seconds to two blasts in quick succession *every four minutes*.

232.—NEWFOUNDLAND.—*Notre Dame Bay.*—*Toulinguet Island.*—A light is now exhibited from a lighthouse recently erected on Long point, the north-west extreme of Toulinguet island. The light is a *revolving white* light, elevated 335 feet above the sea, and should be seen 27 miles. The lighthouse is of red brick. Position, lat. $49^{\circ} 41' N.$, long. $54^{\circ} 49' W.$

233.—NEW ZEALAND.—*Middle Island.*—*Cape Foulwind.*—With reference to former notices on the intended exhibition of a light on Cape Foulwind, the light is now exhibited. The light is a *revolving white* light

of the second order, attaining its greatest brilliancy *every half minute*, elevated 190 feet above high water, and should be seen 19 miles. The lighthouse, 53 feet high, is built of wood, and painted white; the lower part is of open frame work.

234.—NEW ZEALAND.—*North Island.—Ahuriri Road.—Port Napier.*
—The following information respecting the limits of the light at the east side of the entrance of Port Napier has been received:—The light is a *fixed* light, showing *red* between the bearings of S.E. by S. and S. by E. $\frac{1}{4}$ E., white from S. by E. $\frac{1}{4}$ E. to S.S.W. $\frac{1}{4}$ W., and *red* from S.S.W. $\frac{1}{4}$ W. to S. W. $\frac{1}{4}$ S. The *white* sector of light is intended to indicate the limits of the anchoring ground. The light should be seen 8 miles.

HYDROGRAPHIC NOTICE PUBLISHED BY THE ADMIRALTY.

No. 25.—AFRICA, South and East Coasts.—Remarks between Mossel bay and Groote river, and additional information relating to Algoa bay. By Navigating-Lieutenant F. W. Skead, R.N., 1865-1875.

CHARTS, &c., Published by the Hydrographic Office, Admiralty, to the end of October, 1876, and sold by the Agent, J. D. Potter, 81, Poultry, and 11, King Street, Tower Hill.

No.	Scale.		s	d
357	m = 0.12	Labrador:—Sandwich bay to Nain, &c.	2	6
697	m = 0.97	West Indies:—Dominica island ...	2	6
975	m = 3.5	Philippine:—Port Cavite ...	1	6
1750	m = 6.8	Australia, St. Vincent Gulf:—Port Adelaide ...	2	6

OUR OFFICIAL LOG.

BOARD OF TRADE INQUIRIES.

Name of Vessel.	Port.	Nature of Casualty.	Judgment of Court.
<i>Canadian</i> ...	Glasgow ...	Stranded ...	Master's certificate returned.
<i>Hawk</i> (s.) ...	London ...	Ditto ...	Master's certificate suspended for three months.
<i>Juventa</i> ...	Liverpool ...	Ditto ...	Master's certificate suspended for three months.
<i>Kronprindsesse</i>	London ...	Ditto ...	Master's certificate returned.
<i>Louise</i> (s.) ...			
<i>Marie</i> (s.) ...	Ditto ...	Ditto ...	Master's certificate suspended for six months.
<i>Prado</i> (s.) ...	Liverpool ...	Ditto ...	Masters' certificate suspended for three months.
<i>Times</i> (s.) ...	Leith ...	Ditto ...	Master's certificate suspended for three months.
<i>Tortola</i> ...	Sunderland...	Ditto ...	Master's certificate returned.

INQUIRIES INTO SHIPPING CASUALTIES.—The following general rules for formal investigations into shipping casualties, 1876, have been issued by the Lord High Chancellor of Great Britain :—

Whereas by the Merchant Shipping Act, 1876, it is provided that the Lord High Chancellor of Great Britain may, from time to time, make general rules for carrying into effect the enactments relating to formal investigations into shipping casualties. Now, therefore, I, the Right Honourable Hugh MacCalmont Baron Cairns, Lord High Chancellor of Great Britain, do order as follows :—

Short Title.—1. These rules may be cited as “The Shipping Casualties Rules, 1876.

Commencement.—2. These rules shall come into operation on the 1st day of October, 1876.

Interpretation.—3. In the construction of these rules words importing the singular number shall include the plural, and words importing the plural number shall include the singular number ; and the words “Shipping casualty” shall have and include the meaning given to them in the Merchant Shipping Act, 1876 ; and the word “Judge” shall mean the authority by whom any formal investigation into a shipping casualty is held.

Publication of Rules.—4. These rules shall be published by Her Majesty's Stationery Office through its agents, and a copy shall be kept at every Custom House and Mercantile Marine Office in the United King-

dom, and may be perused thereat by the master or owner of any ship, and by any person deputed by him.

Notice of Holding Investigation.—5. When the Board of Trade has directed that a formal investigation into a shipping casualty shall take place, they shall cause a notice to be served upon the master and upon the certificated officers of the ship who were on board at the time of the happening of the casualty, in the Form No. 1 in the Appendix. 6. The Board of Trade may, if they think fit, cause a notice of the investigation to be served upon the owner, and also upon any other person who appears to have been in any way responsible for the casualty.

Parties.—7. The Board of Trade, and the defendant hereinafter referred to, shall be parties to the proceedings. 8. Any person having any interest in the investigation shall, on filing an affidavit showing the nature of his interest, have a right to appear, and shall thereupon become a party to the proceedings. 9. Any other person may, by permission of the Judge, appear, and shall thereupon become a party to the proceedings.

Notice to Produce.—10. Either party may give to the other a notice in writing to produce such documents (saving all just exceptions) as relate to any matters in difference, and which are in the possession or control of such other party; and if such notice be not complied with, secondary evidence of the contents of the said documents may be given by or on behalf of the party who gave such notice.

Notice to Admit.—11. Either party may give to the other party a notice in writing to admit any documents (saving all just exceptions); and, in case of neglect or refusal to admit after such notice, the party so neglecting or refusing shall be liable for all the costs of proving such documents, whatever the result may be, unless the Court is of opinion that the refusal to admit was reasonable; and no costs of proving any document shall be allowed unless such notice be given, except where the omission to give the notice is, in the opinion of the officer by whom the costs are taxed, a saving of expense.

Witnesses.—12. The Wreck Commissioner shall have power to issue subpoenas as nearly as may be in the form used in the High Court of Justice, and such subpoenas shall have effect and may be served in any part of the United Kingdom.

Affidavits.—13. Affidavits may, by permission of the Judge, be used as evidence at the hearing, when sworn to in any of the following ways, viz.:—In the United Kingdom, before the Judge, or before a person authorised to administer oaths in the Supreme Court of Judicature, or before a Justice of the Peace for the county or place where it is sworn or made. In any place in the British dominions out of the United Kingdom, before any Court, Judge, or Justice of the Peace, or any person

authorised to administer there in any Court. In any place out of the British dominions, before a British Minister, Consul, Vice-Consul, or Notary Public, or before a Judge or Magistrate, his signature being authenticated by the official seal of the Court to which such Judge or Magistrate is attached.

Proceedings in Court.—14. The proceedings shall commence with the examination of the master, officers, and any other person who was on board at the happening of the casualty, and who can give material evidence in regard thereto. 15. On the completion of their examination, the Board of Trade shall state, in writing, whether they have any, and if so, what charge to make against any person, and against whom. 16. Where the person against whom a charge is made, in these rules called the defendant, is in Court, or before the Court, the Board of Trade may make him a party to the proceedings by handing to him a copy of the charge. 17. Where the defendant is not in Court, or before the Court, the Judge may, on the application of the Board of Trade, cause a summons to be served upon him in the Form No. 2 in the Appendix. 18. When the defendant has become a party to the proceedings, or when the time allowed for his appearance has expired, and he has appeared, the Board of Trade shall produce any further witnesses whom they may wish to examine. 19. The defendant shall then produce any witnesses whom he may wish to examine. 20. The Judge may then allow any further witnesses to be examined before him. 21. When the evidence is concluded, the defendant, and any parties who may have appeared, shall first be heard, and afterwards the Board of Trade. 22. The Judge may adjourn the Court from time to time, and from place to place, as may be most convenient. 23. The Judge may deliver the decision of the Court either *viva voce* or in writing; and, if in writing, it may be sent or delivered to the respective parties, and it shall not be necessary to hold a Court merely for the purpose of giving a decision. 24. If, however, the Judge decides that the certificate of any officer is to be cancelled or suspended, he shall give his decision in open Court. 25. The Judge may, if he thinks fit, order the costs and expenses of the proceedings, or any part thereof, to be paid by the Board of Trade, or by the parties to the proceedings, or by any one or more of them in the Form No. 3 in the Appendix. 26. The Judge shall report to the Board of Trade in the Form No. 4 in the Appendix.

Computation of Time.—27. In computing the number of days within which any act is to be done, the same shall be reckoned exclusive of the first day and inclusive of the last day, unless the last day shall happen to fall on a Sunday, Christmas Day, or Good Friday, or on a day appointed for a public fast or thanksgiving, in which case the time shall be

reckoned exclusive of that day also. 28. The days between Thursday next before and the Wednesday next after Easter Day and Christmas Day, and the three following days, shall not be reckoned or included in the computation.

Service of Notices, &c.—29. Any notice, summons, or other document issuing out of the Court may be served by post. 30. The service of any notice, summons, or other document may be proved by the oath or affidavit of the person by whom it was served.

Dated this 29th day of September, 1876.

CAIRNS, C.

INSTRUCTIONS TO PRINCIPAL OR OTHER OFFICERS OF THE BOARD OF TRADE HAVING POWERS OF DETENTION UNDER THE MERCHANT SHIPPING ACT, 1876. (89 & 40 VICT., CAP. 80.)—BRITISH SHIPS.—1. The officer has authority to make a provisional order for the detention of any British ship in his district for the purpose of being surveyed, if he has reason to believe, on complaint or otherwise, that she is “unsafe”—that is to say, that she is, by reason of the defective condition of her hull, equipments, or machinery, or by reason of overloading or improper loading, unfit to proceed to sea without serious danger to human life, having regard to the service for which she is intended.

2. The words “having regard to the service for which she is intended,” as contained in the first part of Section 6 of the Act, imply that the ship is at the time intended for some service. This makes the powers of interference more narrow than they were under the Merchant Shipping Act of 1873, Section 12, now repealed. In taking action under the Act of 1876, the officer should be guided in this respect by the following general rules, viz.:—

- (a.) Not generally to interfere with ships which are laid up, and which there is no apparent intention to send to sea:
- (b.) If the ship which is laid up is fit for a service in which she is likely to be employed he should not interfere with her:
- (c.) If such a ship appears not to be fit for any such a service at sea, or for any service on which she is likely to be employed, he should give notice of the case to the Board of Trade.

Practically, the every-day work of detention is by the recent Act generally narrowed down to the cases of ships brought forward for some intended service.

3. Before making any order for the provisional detention of any ship for the purpose of being surveyed, the officer should endeavour, if the report comes from any person outside his staff, to get the Form “Surveys 82a.” filled up, completely if possible, but if that is not possible, or if it would cause delay or difficulty, then with such particulars

concerning the name, employment, and whereabouts of the ship as can be procured; in every case taking care that the form is signed, and the signature of the informant duly witnessed.

4. If the information is conveyed to the officer from one of the members of the Board of Trade staff, or from an officer of Customs or Coastguard, or from a Receiver of Wreck, the signature need not be witnessed.

5. When from circumstances coming under the observation of the officer himself, he orders the provisional detention of a ship, it will be necessary also to fill up the Form 82a. as far as possible, in order that it may be sent to the Board of Trade with the report hereinafter required.

6. In case information concerning the unsafe condition of a ship is sent straight to the Board of Trade, without going through the officer, the Form 82 will be used instead of the Form 82a.

7. The Forms 82 and 82a. can be obtained free of charge at any of the Mercantile Marine Offices, and at the Offices of any of the surveyors. Although these Forms should always be used when practicable, the Board of Trade and the officer will not ignore complaints made by letter containing the name and address of the writer.

8. Every order by the officer that a ship be provisionally detained for the purpose of being surveyed should be made on Form "Surveys 84a."

9. Having made his order, and having kept a correct duplicate of it, the officer should send the Form 84a. with the proper division filled up, and accompanied by the Form 85a. containing a written statement of the grounds of the ship's detention, to the Principal Officer of Customs for the port, leaving him to see that service is legally effected as required by the 35th Section of the Act. If in any case, with a view to save time, the officer thinks it advisable to depart from this rule, and does not send the order for detention to the Customs' officer to be served, he may send the Forms 84a. and 85a. to one of his own staff, or to any officer of Coastguard, for the purpose, and should inform the collector in due course. He should then immediately, on completing Form 85a., fill up the report on Form 84b. and send it to the Board of Trade.

10. Having recorded and despatched the Forms 84a., 84b., and 85a., the officer should then from among his staff select and direct a proper and competent person, or in grave cases two persons, to make the survey.

11. The officer should then take the best steps he can by communicating with the owners, agent, or master of the ship, to ascertain at once whether the owners intend to avail themselves of the right (under Sub-Section 5 of Section 6) of appointing a person to accompany the surveyor.

12. It will be the duty of the officer to see that the surveyors, with or without a person appointed on behalf of the owners, as the case may be, to proceed with the survey as quickly as possible. And it is expected that the master, or owners and their agents, and the person, if any, appointed to accompany the surveyor, will do all in their power to facilitate the survey.

13. When the survey is completed, the surveyors are to make their report on Form "Surveys 87," and on receipt of that report the officer will take his last independent action in the case, as directed in paragraphs 14 and 15 following.

14. If the surveyor or surveyors, or, where a person has been appointed on behalf of the owners to accompany the surveyors, the surveyor or surveyors, and such person report that the ship is not unsafe, the officer will at once order her release. He will then send the reports and papers to the Board of Trade, stating on Form "Surveys 84b." the action he has taken.

15. If the report be that the ship is unsafe and requires repairs, the officer should at once forward the Surveyor's Report Form "Surveys 87" to the Board of Trade, with his own observations and recommendations; and it is of importance that the officer bear in mind that his order for provisional detention is in that case to remain in force. If the person appointed by the master, owner, or his agent to accompany the surveyor or surveyors does not agree in such report, the officer should procure from such person a separate report on Form "Surveys 87a.," and forward it with the report and the papers in the case to the Board of Trade.

16. The future stages of the case will be conducted by the Board of Trade, who will communicate with the parties, and send such instructions to the officer, by minute or letter, as the circumstances appear to them to require.

Foreign Ships.—17. The officer has also power, under Section 13 of the Merchant Shipping Act, 1876, to detain a foreign ship; but this power is confined, in the case of foreign ships, to cases of overloading or improper loading, and then only applies when all or any part of the cargo is taken on board at a port in the United Kingdom, and is whilst at that port unsafe by reason of overloading or improper loading.

18. The officer will proceed, in the case of foreign ships, by using the same forms as in the case of British ships, but he will, in addition also, serve on the nearest Consular Officer of the State to which the ship belongs a copy of his provisional order of detention; for this purpose it will be sufficient if he sends in a covering letter a copy of the Form "Surveys 82a." with the first part filled in.

19. The officer will make the best arrangements he can to facilitate the survey of the ship, and will if the surveyor or surveyors he appoints,

and the person, if any, appointed by the Consular Officer, agree that she is not unsafe, order her release.

20. If the surveyer or surveyors appointed by the officer report that the ship is unsafe, and whether the person, if any, appointed by the Consular Officer agrees or not, the officers provisional order of detention remains in force, and the facts, with full particulars, are at once to be reported by the officer to the Board of Trade for instructions.

General.—21. The above instructions refer to cases in which the officer acts on his own judgment in the provisional detention of a ship without first obtaining instructions from the Board of Trade.

22. The officer will observe from the Act and the above instructions that he can, under circumstances which necessitate immediate action, (a.) order a ship to be provisionally detained; (b.) order her to be surveyed; (c.) order her to be released on survey: but he cannot order the release of a ship the Board of Trade have provisionally detained; nor can he make a final order for the detention of any ship, whether he has provisionally detained her or not.

23. The Board of Trade have also powers of provisional detention; and where they exercise those powers they will instruct the officer of the steps they require to be taken in each case. Where the Board of Trade order provisional detention they will use forms very similar to those referred to above.

24. The Board of Trade may find it necessary in some cases to appoint one of the members of their consultative staff to make the survey, and in such case they will send full information to the local officer, so that facilities for survey may be afforded.

25. In any case in which the officer thinks it desirable that assistance should be obtained from the Board for making a survey of a ship he may have ordered to be provisionally detained, he should at once apply to the Board for such assistance, stating the nature of the questions or difficulties involved. The Engineer-in-Chief or his assistant, or the Principal Surveyor of iron or wooden ships and his assistants, or such other person as the case may require, will in such case be instructed to take charge of the survey.

26. An officer should never hesitate to apply for assistance from London in any case likely to raise important questions of principle in regard to the strength or construction of the hull, machinery, and boilers of ships.

27. The above Instructions are so drawn as to apply to a case in which the officer who has power of detention appoints a surveyor or surveyors, but does not himself survey. It is not, however, intended to preclude the officer himself from surveying, where from the nature of the case and his special qualifications he is competent to do so. Whether he will conduct the survey himself or entrust it to other sur-

veyors, or whether he will, having appointed another surveyor or surveyors, accompany them is a matter which depends upon the special circumstances of the case, and upon which he must use his own discretion.

—EDWARD STANHOPE, Secretary ; THOMAS GRAY, Assistant Secretary.—
Board of Trade Circular, No. 78, September, 1876.

THE ROYAL NAVAL RESERVE.—The following appointments have been made in the Royal Naval Reserve:—To be Sub-Lieutenants—William James Lyon Roe and Thomas Carpenter. To be Honorary Lieutenant.—The Right Hon. the Earl of Hardwicke.

QUARANTINE NOTICES.

BOARD OF TRADE, Oct. 5.—The Board of Trade have received, through the Secretary of State for Foreign Affairs, information to the effect that the Portuguese Government have declared the port of Bahia free from yellow fever since the 25th August last, and the ports of the Province of Pernambuco free from the same disease since the 12th August last.

BOARD OF TRADE, Oct. 17.—The Board of Trade have received, through the Secretary of State for Foreign Affairs, a copy of a despatch from Her Majesty's Consul at Bahia, announcing that clean bills of health are now granted to vessels leaving that port. The Board have likewise received a notice, issued by the Portuguese Government, declaring the port of Savannah to be infected with, and all the other ports of the State of Georgia suspected of, yellow fever since the 16th August last.

EMIGRATION TO THE UNITED STATES.—European emigration to the United States of America continues to decrease in a very marked manner, to judge from the official report of the Immigration Bureau at New York, just issued. While in 1873 266,818 emigrants disembarked at the port of New York, these figures have fallen to 140,041 in 1874, and 84,560 in 1875, thus showing a return to the figures of the years 1859 and 1858, which were respectively 79,822 and 78,589. Among the emigrants who arrived in New York during last year were 29,559 Germans, while in the preceding year there were 40,802. The immigration to the United States of Germans was only once smaller than in 1875, which was in 1861, when the numbers were 27,189 only. With respect to other nationalities, a similar diminution is apparent for the year 1875:—Great Britain, 33,787 ; Austria, 4,970 ; Sweden, 3,808 ; Russia, 3,123 ; Norway, 2,602 ; and Italy, 2,575. The emigrants as regards sex and age are divided as follows:—37,527 men, 28,905 women, and 18,128 children above twelve years of age.

THE SHIPMASTERS' SOCIETY.

THE rooms of this Society, in Jeffrey's Square, St. Mary Axe, are now open, and shipmasters are invited to go and look at them. Although not completely furnished, the rooms are very worthy of inspection, and we are sure that the situation and the premises will form a most convenient *rendezvous* for captains. Numerous books, periodicals, and other publications are provided for the use of members, and sundry models, charts, &c., have been presented by friends with the view of decorating the rooms with appropriate objects. Messrs. Barraud and Lund, of Cornhill, have presented the Society with two clocks, and lent a third, which they propose to connect by wires with their own premises, in order to keep it regulated every hour by the Observatory at Greenwich. One face of this clock is to show outside, and one in the general room of the Society. This is a most valuable addition to the Society's premises, for which Messrs. Barraud and Lund deserve the warmest thanks.

It is with much satisfaction that we are enabled to state that the entire Committee of Management give their services to the Society gratuitously, the original promoters even having refused to accept any payment on account of expenses incurred in connection with the establishment of the Society. This fact ought to invite general confidence, and shipmasters disposed to join may rest assured that the Society is not managed by men eager to make money out of the affair. It is also desirable to point out that Captain Potter and Captain Williams have taken the lease of the present premises for the use of the Society in their own names, looking only to be indemnified by the Committee of Management to the extent of the subscriptions and donations, so that intending members incur no responsibility beyond having to pay their entrance fee and subscription.

The Rules of the Society have passed the scrutiny of the Board of Trade and of their Counsel, and very shortly will be duly registered and printed.

Last month the Committee of Management had occasion to call upon their Secretary to resign, and Mr. Pritchard, the Society's solicitor, has since acted as Secretary gratuitously.

The Society has now enrolled 130 members, and many additional members are about to join.

Having now given a general idea of the progress of the Society since our last report, we have only to recommend all shipmasters to make further inquiries at the premises, and to judge for themselves as to their suitability and convenience. We think the Society is being well established, and that it will grow into an important and flourishing institution.

THE
NAUTICAL MAGAZINE.

VOLUME XLV.—No. XII.

DECEMBER, 1876.

OUR MARITIME DEFENCES CONSIDERED, COMBINED WITH
THE MANNING OF OUR MERCHANT SHIPS.

ARTICLE V.

TO arrive at sound conclusions on any subject, it requires to be mastered in all its details; with that object in view I have read almost everything worth reading that has been printed during the last 200 years on manning our ships; but I fear I have wearied my readers by inviting them to consider with me even the substance of my research.

Although most writers have a hobby they love to ride, or a bugbear constantly alarming them, and though even Governments are not free from these proverbial failings, there is much to be learned from the records of the past. For instance, every student of history must be convinced that any attempt to resort to the iniquitous and demoralising press-gang would be alike futile and dangerous. We must, therefore, banish that mode of raising men altogether from our thoughts. It was a project of an age of brute force, working wretchedly even then, and cannot now be re-introduced. While, however, opinions differ on numerous other projects, some of them in their details worthy of adoption, and others crude and impracticable, there is one most important point on which all Governments and most writers appear to be agreed; and that is, the

desirability, if not the necessity, of the Royal Navy acting in concert, or, at least, in harmony with the Mercantile Marine, so as to fill up the chasm now existing between the two services, and thus secure reserves from our only reliable resource.* We should never forget that the naval power of Great Britain is based upon her maritime resources, and that our merchant service must ever be our most trustworthy auxiliary in any lengthened war. In a word, it is the real source of our supremacy on the ocean.

Nevertheless, it is a remarkable fact that since 1852 all Governments have practically ignored it, except in attempting to derive from that source, under the recommendation of the Commission of 1859, a reserve of seamen who are periodically drilled on shore, but who seldom or never see a ship of war. This exclusive policy has been fully exemplified for some years in the "continuous service" system,† and more recently by the establishment of training-ships devoted solely to the rearing of boys for the Royal Navy.

No doubt these systems have worked very well in peace, but the Navy is maintained as a precaution for war.‡ If we could ensure peace it would be dispensed with altogether. But in adopting this system we have lessened our power as a maritime nation; and by ignoring thus far our Mercantile Marine, which other nations justly envy, we have lowered our position down to their level. Indeed, some portions of their schemes we copy. Having but a limited maritime population, they are obliged to raise their reserves from the mass of the people, by training some of them to be seamen; and when we rear "country lads" specially for the Navy we only adopt a practice which in their case is a necessity.

History tells us how signally even such a warlike genius as Napoleon I.

* See "Suggestions for Improving the Character of our Merchant Seamen, and for Promoting an Efficient Naval Reserve," by Admiral the Hon. Sir F. W. Grey, published by Stanford, 1873. See also Lecture by Captain J. C. Wilson, R.N., of H.M.S. *Thunderer*, on the question, "Is the Merchant Service any Longer a Feeder to the Royal Navy?" delivered at the Royal United Service Institution, January 17th, 1876, and the speeches and writings of various other high naval authorities.

† The late Admiral Sir Charles Napier and Captain (now Admiral Sir B. J.) Sullivan on the one hand, and Mr. Howell, an intelligent warrant officer, on the other, as representatives of the two classes in the Navy, strongly objected to this system for the reasons named in their evidence before the Commission of 1859. See also an able speech delivered in the House of Commons by Sir Francis Baring on going into Committee on Naval Reserve Bill, Session 1859.

‡ "It is a fact," replied Captain Sullivan, to Question 2114, Manning Commission, 1859, "that the continuous service, however perfect, cannot give you one man for war purposes."

failed in this respect. I remember well a remark of the last Napoleon, at an interview I had with him in 1861. "I can build ships," he said, "but I cannot make sailors of my people as you do of yours."* Yet we ignore the resources of the nation within our reach, and train seamen on shore to fight our battles in the hour of need, disregarding the fact that we have by far the largest Mercantile Marine in the world, and the most extensive means of training them afloat, both in seamanship and in the arts of naval warfare.

However, as I desire that the articles I have undertaken to write should be more a record of facts than a political disquisition, I shall pass over the questionable policy of practically ignoring the existence of our Mercantile Marine, and invite my readers to examine with me the cost to the nation of the system into which it has plunged the Navy.

With this object in view, I have gone through the Navy Estimates for 1876-77, consisting of 233 closely printed folio pages. They have greatly increased in bulk since I had a seat in Parliament. It was then no easy matter to fathom their mysteries, but now they have swelled to such a bulk that I might say of them, as the late Lord Derby once said of Bradshaw's Railway Guide, "No doubt it is a very useful book, but I never could understand it."

These estimates are replete with the most minute, but harassing details. Unfortunately, however, they appear to be very incomplete as regards the cost of particular departments. For instance, if any of my readers were to refer to vote 1, p. 7, "Wages, &c., to Seamen," they would find that the wages, &c., this year of 7,000 boys (4,000 on service in the fleet, and 3,000 under instruction in training-ships) are put down at £70,268; and if he be an easy good-natured person, and not very inquisitive, he might arrive at the conclusion that this is the cost of them, and that the Admiralty manage the business with great economy. Nor should I call him even a careless student of the estimates were he to do so, for no charge whatever is stated for their clothes and food; these are embodied in the general estimate, vote 2, viz., "Victuals and Clothing for Seamen and Marines."†

* "No human being could foretell with certainty what would be the experience of a future naval war as regards the value of ironclads and other ships of war; but of this they might be certain, that without an adequate body of well disciplined and intelligent and contented seamen no ships would be of much value." See an able speech delivered by Mr. Shaw-Lefevre in Committee on Navy Estimates, 10th April, 1876.

† It is an old controversy how the Estimates ought to be made out. My friend, Mr. A. S. Ayrton, who is on a visit to me at present, considers that the present mode is preferable to any other, and having filled the office of Secretary to the Treasury, he ought to know; but, however great my respect for his abilities—and it is so great that I deeply regret his absence from Parliament—I differ from

There are, however, members of the House of Commons who are not satisfied unless they search to the bottom; and one of the number, Sir George Balfour, moved last year for a return "showing the estimated annual cost in detail of training boys in training-ships for the Royal Navy, with the total average cost of each boy while under training." And what does it show? Why, it shows that instead of £70,268 covering the cost of 7,000 of these boys, the annual cost of training only 3,000 of them amounts to somewhere about £174,000!* But at page 129 of the Estimates, vote 14, "Miscellaneous Services," there is a sum of £2,300 for "expenses specially incurred for the boys" not included in this return, and no doubt there are a great many other items, although I cannot trace them.

If we refer to page 20, vote 4, "Royal Naval Reserve, Wages Allowances, Drill, &c.," we find a charge of £153,200, which the casual reader might consider was the annual cost of this force; and it is only in a note at page 22 that we ascertain the "total charge" to be £240,109.

I wish that some member of Parliament would move, as in the case of training boys for the Navy, for the full details of this new service, as I feel convinced that this sum, however large, still falls short of representing the whole cost. I direct attention to this fact, for under the same vote, *Reserves*, page 20, A., there is a charge of £4,117 for "salaries, wages, &c.," Royal Naval Reserve Office, which is not included in the "total charge."

But it is still more difficult to trace the "Contingencies, Coast-guard Establishment on Shore," which are put down at only £4,314, and their "fuel and light" at £2,984. But if we turn to page 131, vote 16, of the Estimates, "Pensions and allowances," we shall find a sum of £55,283 charged to "Pensions to Coastguard," and to page 144 a further sum of £53,056 voted as "Pensions granted to persons formerly employed in the Coastguard Service, &c., &c." Then,

him on this point, and think that the Estimates might be so arranged as to show to the public what the Government require for the different departments under separate heads. For instance, as the wages for the 7,000 boys are given, why should an approximate estimate not be entered of the amount required for their food, clothing, &c., &c. Mr. Ayrton holds that "the Estimates are made out for the purpose of checking the expenditure of money, not for showing the entire cost of branches of service, and that whenever this is required it must be moved for as a return of "cost of service." I think they might be made out so as to do both.

* The "total gross cost per annum of training each boy for the Royal Navy is £57 18s. 1d.," *exclusive* of "any proportion of the original cost of fitting the vessels for training-ships, and exclusive of the expense of raising the boys." See Parliamentary Paper, Navy (training-ships, boys), issued by the Admiralty. Ordered by the House of Commons to be printed, 2nd August, 1875.

if we go back to vote 4, Coastguard Service, we shall find that the "total charge" of that service for the year is no less than £471,906, but which, I presume, is entirely exclusive of pensions.

No doubt much the largest proportion of the expenditure for Coastguard services is for the protection of the Revenue ; but it will be under the amount if I deduct from that sum and from the pensions to the men in that service £100,000, and place it to the debit of *Reserves*.

Referring back to vote 16, I find, under the head of "Military and Civil Pensions and Allowances," various very large items, which I have no means of analysing, such as £462,286 for "Pensions and Gratuities to Seamen and Marines."* Altogether, the charge under the head (p. 147) of "Non-effective Service" amounts for the year to £1,896,784, which, I presume, includes half-pay, reserved pay, &c., for officers and men, both of the Navy and Marines and civil employments connected therewith. Out of this sum I may take at least £200,000 for extra pay, pensions, &c., to the continuous service men who constitute a portion of our *Reserves*. And as we retain about 3,000 men in our harbour ships and elsewhere, for the purposes of *Reserves*, I must debit that head with their wages, provisions, &c., &c., which at £60 per head, would amount to another £180,000. So that the annual cost for the training of boys for the Navy, and the maintenance of the existing *Reserves* of seamen, amounts in round numbers to close upon £900,000.

But the expenditure for these purposes does not end here. Besides numerous other charges, which it is impossible for me to trace, much less analyse, we must remember that every boy we train for the Navy, before we make an able seaman of him, costs the country at least £300 ; † while such boys, if trained in the Merchant Service as sailors, would cost the nation nothing until they joined the Navy. Three thousand of these, known as "second-class boys," are in harbour ships under training. I shall be under the mark if I allow for these and various other payments in connection with "Naval Coast Volunteers," "Short-service Pensioners," and so forth, £200,000 ; so that our annual expenditure under these heads will not fall much short of one million one hundred

* I presume that very few pensions have yet become payable under the Royal Naval Reserve system, so that in future Estimates there will be increased charges for pensions.

† Captain Wilson, who has revised this article, remarks:—"The average age of boys entering the Navy is 16 ; and before they are rated as ordinary seamen they cost the country £120 each, or £240 before they can be rated as able seamen ; but to this sum must be added the waste by death, desertion, &c., which, in four years, amounts to 30 per cent., thus the actual cost of raising the lowest grade of A.B. in the Royal Navy is about £320."

thousand pounds sterling, to say nothing about the interest of capital in ships employed for training, depreciation, insurance, and so forth, which, strange to state, are never taken into account by any Government in calculating the cost of our ships, or dockyards and other establishments.

Much the most important of the Reserves is the "Royal Naval Reserve," drawn from seamen in the Merchant Service and periodically drilled on shore. I have never had much faith in these short drills on shore or on board of training-ships, or even in cruising tenders, the cost of which I shall not attempt to estimate; and this want of faith in all such casual and temporary drills applies alike to boys and men. Nor could I see any advantage equivalent to the cost when, a few years ago, a very large number of the men of the Reserve Forces made a longer cruise in our ships of war under the flag of the Lords of the Admiralty. Most of these cruises resolve themselves into pleasure trips, and the drills on shore are, as a rule, pleasant social gatherings rather than trainings where a substantial advantage is obtained equivalent to the cost; and they are not to be compared to the advantages derived from *actual service*.

A boy, for instance, destined for the Merchant Service, does not learn so much during four years on board a training-ship as he would do during one year in a vessel at sea where he was serving his apprenticeship.*

Nor is the training of the boys for the Navy much better. In the vessels specially appropriated in both services for the purpose, they pass through a routine—very good in itself—for the purpose of laying the foundation on which the structure of seamanship is to be reared, but this in itself does not make able, or even ordinary seamen of them.†

Thus, while professing to train seamen for the Royal Navy at a very great expense to the nation, we have not at the present moment in that service more than 11,000 *British able seamen*; and in the two services,

* "A boy is wholly unproductive during the period of education; whereas, the apprentice boy at sea, while receiving a *practical training*, earns enough to feed and clothe himself." See letter from Mr. Nathaniel Dunlop, of the firm of Messrs. James and Alexander Allau, Glasgow, published 19th January, 1876.

† Captain J. C. Wilson, R.N., who was in command of the vessels engaged in training boys for the Navy, remarks (See "Seamen of the Fleet, their Training, &c., &c.," Royal United Service Institution, July 2nd, 1875):—"Though our sea-going ships carry as many boys as they can stow, there are still from 1,500 to 1,700 constantly on depôt, waiting their turns for draft. Whilst thus waiting, a considerable number of them reach their eighteenth year, and are by order rated men; thus the 1,200 ordinary second-class rated in the Estimates may be taken to represent a body of sailors who have never been at sea at all!" "I know one *able seaman* in the Royal Navy," he added, one day when we were talking over the subject, "who had *never* been at sea, and I dare say there are numerous others."

excluding foreigners and British negroes (though some of these are first-rate fellows), we have not more than 40,000 thoroughly-trained able *British* seamen. I confine myself exclusively to this class of mariners.

Let us now inquire in earnest, and, I believe, for the first time, what number of such men we really require for the Royal Navy and for the Mercantile Marine—I mean able seamen, who, as in all other branches of industry, have served the necessary apprenticeship to make them efficient in their calling and skilful in all its details, for there is as much detail in the duty of a thorough sailor as there is in that of any mechanic.

Of course opinions as to the requisite number must vary; but after consulting men in both services in every way competent to guide me, and using my own experience and knowledge for what they are worth, I have come to the conclusion that the United Kingdom of Great Britain and Ireland ought at all times to have 100,000 trained able seamen of its own, including the petty and warrant officers of the Royal Navy, and that the seamen of both services should be induced, as far as practicable, to intermingle and periodically interchange with each other, the duties of either service maintaining a constant flow from boyhood through manhood up to that term of life when no longer fit for service at sea.

We have now to inquire how 100,000 able British seamen are to be obtained, trained, and maintained. The very idea of reverting to the old law, in its integrity, when every merchant vessel was required to carry an apprentice for every 100 tons, terrified, as well it might, our large steam shipowners. If such a law were now in force, and the gross tonnage were made the basis for calculation, the Cunard Company, for instance, would be compelled to carry from twenty to forty apprentices in each of its steamers, and Mr. Inman, in his last and biggest boat, would be obliged to have no less than fifty!! These and the other great lines of steamers could have no possible use for one-third or one-fourth of that number. I say nothing about training to advantage even half that number of boys in any ship, and consequently the revival of the old law, even though based on registered tonnage, would be to such shipowners not merely a monstrous hardship but an intolerable nuisance. We are not, however, now required to pass any such law, and if we were it would be a most ineffective one for the objects in view, as steamships do not, and cannot, train the best class of seamen; and have only the means, in the ordinary course and requirements of their service, to train a very limited number of youths for sailors, and these must ever be inferior to seamen trained in sailing vessels. They might prove very valuable in their particular line, and for that purpose would be an acquisition.

I have now to consider if we cannot meet our requirements and obtain such material as would really be of advantage to the nation and to shipowners themselves without inflicting any hardship upon either the proprietors of steam or sailing vessels as a particular class of the community. I should leave those of them who do not approve of my scheme to adopt a money payment, in lieu of taking apprentices, as recommended by the Royal Commission on Unseaworthy Ships. Many owners, especially of steam vessels, may prefer to do so, and there are also owners of sailing vessels engaged in the trade with North America who cannot find employment for apprentices during winter, who would prefer being relieved by some such small payment. Should such be the case, they might be exonerated from the necessity of carrying any apprentices.

To perfect my scheme, I have again sought the aid of Mr. Stoneham, the Registrar-General of Seamen, which he has most readily afforded.

Considering the enormous increase in our Mercantile Marine, I feel that we can now train all the apprentices necessary to maintain a standing force of 100,000 able seamen without any hardship upon the shipowners as a class. To show how this may be done, Mr. Stoneham has prepared for me the following tables on scales which would require one apprentice to be carried in a vessel of less than 300 tons, and in the other of only one in vessels of less than 400 tons—scales *much* below, in either case, what owners of vessels of that tonnage now consider it for their interest to take. These tables, as will be seen, apply to the United Kingdom and her Colonies and Possessions.

Table showing the number of Registered Sailing and Steam Vessels, classed according to Tonnage, belonging to the United Kingdom and British Possessions :—

Belonging to	TONNAGE.															
	Under 100.	100 and under 200.	200 and under 300.	300 and under 400.	400 and under 500.	500 and under 600.	600 and under 700.	700 and under 800.	800 and under 1,000.	1,000 and under 1,200.	1,200 and under 1,500.	1,500 and under 2,000.	2,000 and under 2,500.	2,500 and under 3,000.	4,000 and above.	TOTAL.
The United Kingdom	14,496	3,152	1,496	1,019	807	583	529	423	665	583	622	317	73	29	10	24,804
The Isle of Man	469	100	55	13	10	5	4	1	—	—	—	—	—	—	—	657
The Channel Islands	8,087	1,573	645	375	215	161	151	97	164	102	85	19	1	—	—	11,675
British Possessions																
Total	28,052	4,825	2,196	1,407	1,032	749	684	521	829	685	707	336	74	29	10	57,136

From the above it will be found that the number of apprentices which would be obtained by allotting them in the following proportion, would, as shown below, range from 28,000 to 26,220 :—

No.	PROPORTION.				Number of Apprentices obtained.	
1.	Apprentices... ..	1 per Ship. 8,428	2 per Ship. 4,230	3 per Ship. 8,228	4 per Ship. 1,796.	23,380
	Tonnage	100 to 400	400 to 700	700 to 1,500	1,500 and above	
	Number of Vessels ...	8,428	2,465	2,742	449	
2.	Apprentices... ..	1. 7,021	2. 6,376	3. 10,278	4. 1,796	25,471
	Tonnage	100 to 300	300 to 600	600 to 1,500	1,500 and above	
	Number of Vessels ...	7,021	3,188	3,426	449	
3.	Apprentices... ..	1. 7,021	2. 4,878	3. 12,525	4. 1,796	26,220
	Tonnage	100 to 300	300 to 500	500 to 1,500	1,500 and above	
	Number of Vessels ...	7,021	2,439	4,175	449	

On further consideration, and after consulting Mr. Stoneham and other gentlemen well competent to advise, I thought it better that for the present at least any legislative measure should be confined to the United Kingdom. Canada, for instance, might object to any law requiring her shipowners to carry apprentices, on the very valid ground that she could have no guarantee that she was not providing trained seamen for her immediate neighbour, the United States of America. It would, therefore, be desirable to deal now only with our own wants, and leave the Legislatures of our colonies to follow our example if considered advantageous. Various other reasons have led me to this conclusion, but these I need not here enter upon; nor need I now argue this question from the other point of view, although I see numerous advantages to be derived by the Colonies from the extension of the scheme.

I have, therefore, had another table compiled showing the number of apprentices that would be produced on the following scale from vessels belonging *exclusively* to the United Kingdom :—

SCALE.				No. of Vessels.	No. of Apprentices.
1	Apprentice to each Vessel between 80 and 200 Tons			4468	4468
2	“ “ “ 200 “ 500 “			3322	6644
3	“ “ “ 500 “ 1500 “			3405	10,215
4	“ “ “ Above 1500 “			429	1716
Total				11,619	23,088

Many of my readers may be of opinion that if we re-organise the system, the number of apprentices in the above table would be

sufficient to maintain 100,000 able seamen; but though the removal of the greatest temptation, the *employment of boys for the voyage*, and the introduction of more simple laws for the discovery and punishment of desertion, with some fresh international consular arrangements, would tend very materially to reduce the amount of desertion, I think that we ought at all times to have 80,000 youths serving their apprenticeship between the ages of sixteen and twenty.*

I have, therefore, with the assistance of the Registrar-General of Seamen, compiled the following table applicable to the United Kingdom alone, which would give about the required number of apprentices:—

SCALE.					No. of Vessels.	No. of Apprentices.
1	Apprentice to each Vessel	between 50 and 150 Tons			7258	7258
2	"	"	150 "	850 "	8362	6724
3	"	"	850 "	1200 "	4087	12,261
4	"	"	Above 1200 "		1051	4202
Total					15,758	30,447

It will be seen by this table that I obtain a very large portion of my supply from those vessels where boys, and especially good apprentices, would, so far from being a hardship, *be a great acquisition to their owners*. For instance, every vessel between 50 and 150 tons requires a boy: and that boy, under the immediate eye of the master, who is very frequently the owner of the vessel, would be so trained and cared for, that before he had been two years at sea he would in such craft be as valuable as a man,† nor would it be any hardship for vessels from 150 to 850 tons to carry two apprentices, much less for those of from 850 to 1,200 tons to carry three, and for all above to take four. As the calculation is based

* The most important resolutions of a committee of the leading shipowners of Liverpool, who, in 1870, inquired thoroughly into the condition of our merchant seamen, was, "That, in order to obtain efficient supplies of good seamen, the Government should provide and support training-ships in sufficient number at all our large seaports, and that Government should encourage as much as possible the apprenticeship system."

† My space does not allow me to enter upon details; but I should have all indentures upon a form prepared and issued by Government, which could be printed and sold at a nominal price. These indentures should be entered into before a magistrate or shipping master, and attested by either, and even if the stamp, which I affix to all indentures, were only a halfpenny, it should be in a conspicuous form, so that the boys and parents alike might see that they were entering upon a solemn engagement which the law would promptly punish if abused.

upon the net register tonnage, the owners of steam vessels above that tonnage (and they have been the chief opponents of any apprenticeship scheme) could hardly find any just ground for complaint, for they would be free to employ boys as they pleased, with an understanding that, as far as practicable, they should be taught seamanship. So far from four boys being a hardship in such large vessels, they would prove an advantage, as their captains would obtain youths from the source to which I shall hereafter refer, who would be of some service to them even on the first day they were embarked, and that is more than they can say of some of the men, who, for want of an organised and well-understood system amongst themselves, are obliged to be shipped at high wages as ordinary seamen—pretty fellows, I may add, some of them are ; not half so good as the youths who might be obtained from Industrial Schools after twelve-months training.*

To maintain 30,000 apprentices afloat, we must engage through various channels as we now do about 2,000 youths, and we should further require to prepare and preliminarily train 6,000 more *annually*. As the Navy, from the scheme I have in view, would draw its supplies of seamen from that source, and the nation would likewise make it the basis of its reserves, the nation should, at its own cost, provide within certain limits for the training of these 6,000 boys, more especially as we should, by the conditions of the scheme, require the Mercantile Marine to maintain afloat a certain number of apprentices who, however valuable for its own purposes, would be subservient to those of the State as trained seamen and reserves—the shipowners providing from their own resources the other 2,000.

Looking at this question in all its various ramifications, I think that it would not be unreasonable to require the nation to provide for an annual supply of 6,000 boys, part for its own use at first, and part for the Mercantile Marine,† as the whole of them in the long run would be for the use of the nation. These boys I should train in ships as we now do, or if we had not sufficient old ships to spare, I should train them in barrack schools, at the mouths of rivers, or by the sea-side, provided with

* Mr. Brassey, who has a warm feeling towards our seamen, and is not disposed to admit that they are worse than they were, remarks in one of his speeches on the subject of manning, "there is large room for improvement" (in our seamen), "and it will be a reflection on our age of advanced civilization if nothing effectual is accomplished for their amelioration."

† It is only due to Admiral Sullivan to state that he was one of the first, if not the first, to advocate publicly the establishment of training-ships. See his pamphlet, "Remarks on the Merchant Seamen's Fund, and Manning the Navy," published April, 1858, by Spottiswoode, specifying all the details of cost, &c., which experience has since proved to be very accurate.

the deck and rigging of a ship, as at Feltham and elsewhere. When I mention barracks, I do not mean those large ungainly structures to be seen in our arsenals ; much less the expensive buildings throughout the country appropriated to charitable and similar purposes, where it is difficult to comprehend, until you are close upon them, whether they are palaces or poor-houses ; but temporary buildings, such as at Aldershot, where the boys, trained in divisions, could sling their hammocks, and where on the beach they would have boats for rowing, and a wooden jetty with a crane, where they would learn the art of landing and stowing their own stores, a duty alike essential to the seamen of the Royal Navy and Mercantile Marine.

In the training-ships, I should recommend the vessel of the Marine Society to be adopted as the model, as from very long experience I think it is perhaps the best regulated of the whole. In this vessel boys are not kept on board for more than nine months, and their cost averages about £22 per annum. But as a boy from the sources from which we should be obliged to draw him would not be of much value to the Navy or to our shipowners until he was sixteen years of age, I should ask the Government to provide for him double that time, or eighteen months if necessary, so that he would gain strength while learning the preliminary duties of a seaman, and especially the order and discipline so essential in all vessels.*

The cost, therefore, to the country would be £33 for the education, maintenance, and training of each boy for eighteen months, or in round numbers £200,000 per annum for the whole, which is very little more than the cost, &c., at present, of training 3,000 boys for the use of the Royal Navy alone. I should not disturb the existing ships, nor the mode in which boys are therein trained, and at or above the age of sixteen I should indenture them to merchant ships somewhat after the mode suggested by the Commission on Unseaworthy Ships.† But in consideration of the Govern-

* Captain Rowland Brookes, the Superintendent of the Feltham Industrial Schools, remarks in a note I have just (18th Nov.) received from him—"I think if lads from training-ships could be bound apprentices at 15 years of age instead of at 16, even if they served 5 years instead of 4, it would be found in the long run to work better, as I think the younger lad would be found more tractable, and that he can be taught his work quicker and better than the older lad. I know from experience with our boys here, that if (after they go to sea as apprentices) we can get the younger ones over their first twelve months, they nearly always serve their full time, but in the case of the older ones, whose characters are more forward, it is very seldom we can get them to remain over their first voyage—and this is, I believe, the case with other training-schools, to a greater extent even than with us, as their boys are older than ours."

† The scale of pay for apprentices is a matter for consideration, but as the demand for labour has materially increased in all branches of trade, I think it

ment grant I should allow the Admiralty to have its choice of whatever boys they required for their own wants *as boys*, and I should require all boys, that is, to such an extent as the Admiralty might want, *who have received Government aid*, to serve in the Royal Navy after they had finished their four years' apprenticeship in the Merchant Service for such a term of years as may be found necessary to make efficient* Navy seamen. After that they might follow their own choice, either to remain in the Navy if there were vacancies, or to return to the Merchant Service if they desired.

As the Navy thus obtained its supplies of boys and men, I should by degrees transfer its present training-ships to the different localities or centres of recruiting where their services were most required, materially increasing the number in the north-eastern ports where small vessels are most abundant, placing them under similar control with the existing training-ships, and drawing the captains and officers of all these vessels chiefly from the experienced men in the Navy. Their appointment, however, should be made by the different local committees, who now voluntarily and most economically and efficiently manage these vessels, and who do so without any reward beyond what the pleasure affords—greatly, I must add, to their credit and to the benefit alike of the nation and the Mercantile Marine. At the same time, to secure a well-organised system, it would be desirable that all these training ships should be visited periodi-

would be desirable to increase the existing scale—but that would rest on the ship-owners themselves and be regulated by the supply and demand—to £7 for the first year, £9 for the second, £12 for the third, and £17 for the last, or £45 for the term of apprenticeship, 10 or 15 per cent. of which might be deferred payment until they had concluded their term of apprenticeship.

* Boys trained until they were 16 years of age at the expense of the country, presuming that 3 years would be amply sufficient for service in the Navy, would be entirely free at the age of 23. Whereas boys now entering the Royal Navy, upon whose education and training there was no national expenditure until they reached the age of sixteen, are now required to sign the following document before they are received, which binds them, if they enter at that age, to serve until they are 28 years of age, or five years longer than I suggest, preventing them from being voluntary agents during the best years of their manhood. May not this standing regulation account to a large extent for the great number of desertions from the Navy? "I hereby certify that my son has my full consent (being himself willing) to enter Her Majesty's Navy for a period of ten years' continuous and general service, from the age of 18, in addition to whatever period may be necessary until he attain that age, agreeably to Her Majesty's Order in Council, dated 1st April, 1853, and the Admiralty Regulations of the 14th June, 1853, relating thereto. And I declare that he has never had fits, and that he has never been an inmate of a reformatory. Witness our hands at , day of , 187 . Date of boy's birth . Parent's signature (or, if dead, nearest relative) . Boy's signature of consent, and who further declares that he is not indentured as an apprentice."

cally by a Board of Trade, or some other competent official inspector, as in the case of schools on shore, so as to insure efficiency and the proper application of the Government grant, which might be made in such a manner as not to interfere in any way with the voluntary aid now so liberally afforded to these training-ships. Indeed it might be made so as to encourage subscriptions to boys for efficiency and good character.

If the scheme I have sketched out be adopted, it would involve no immediate or radical changes. Extra ships would be added by degrees to those existing, and as the boys were drawn from those into the Navy, the ships now specially employed for the purpose of training by the Admiralty would be withdrawn or transferred to one general school of educational vessels.

Having thus created in time the requisite number of able seamen, we have now to consider how they are to be retained, and that is narrowed to the simple question of supply and demand. We must, therefore, pay them the market price for their labour; and as we can afford to do so better than any other nation, it will be our own fault if they enter the service of foreigners.

Somehow or other our shipowners have not, I think, sufficiently considered this question of so-called "high and low wages" in all its bearings. A trained man at £3 or £3 10s., for instance, is cheaper to them than the untrained, and in many cases worthless, man to whom they now pay £2 10s., or perhaps only £2 per month—cheaper not merely on account of the extra work he performs, but because he consumes, or rather wastes, fewer provisions. To analyse this question would occupy too much space, but if I had it at my disposal I could show that the quantity of provisions consumed, and more especially wasted by 12 of these hybrid fellows (to say nothing of the waste and danger by the breaking and pilfering of cargo), whom shipowners now engage to so large an extent as sailors, would suffice for 15 able seamen who had served their apprenticeship, and had thus been trained not merely to the art of seamanship, but to habits of economy. It is clearly, therefore, to the advantage of shipowners to have the very best class of educated and trained seamen in their service.

Although sailors are proverbially known as "citizens of the world," and "love to roam," they, after passing the meridian of life, desire to settle down in their Fatherland. It is so with all mankind; the homes of our youth, be they ever so rugged or humble, present to us all in our declining years charms not to be found in any other part of the world. This feeling is quite as strong in the sailors of England as in those of any other country.

For these reasons, if we give to our seamen wages and the chance of promotion, or any other advantage equivalent to what they would

receive in other countries, they would not leave us. Low wages, stingy fare, bad accommodation, oppressive control, or injustice in any form, would encourage, if it did not compel them to seek other lands.

So long as we give to our seamen just laws and sufficient inducements to remain with us they will not seek employment under foreign flags. But although men who have received maintenance and education at the expense of the State in their youth, when unable to provide for themselves, are bound in equity to give in return a limited period of service to the nation, receiving, of course, the current rate of wages, that service may be irksome to many of them, and therefore I should give them an inducement both to enter the Navy and to enrol as members of her Reserve Force. If sailors entering the Royal Navy do not receive a sufficient sum to procure a suitable outfit for the service, I should grant to all those who are drafted from the Merchant Service at the age of 20, an allowance for that purpose of a sum not exceeding £10; and to anyone who enrolled for life as a member of the Reserve Force, and who held himself ready to be called out for action within a specified period, I should place to his credit from 20s. to 25s. per annum, which, so long as he adhered to the regulations, would give him an annual pension of at least £20 per annum at 50, and £24 per annum at the age of 55. On reaching the age of 50* the sailor would thus have a considerable "stake in the hedge," which he has not now, and a great inducement to remain under the British flag, and hold himself ready to serve in the hour of need for the defence of his country. Practically the *whole of our able seamen would thus most likely become a Reserve*, and we should thus, at about one-third the cost we are now paying, exclusive of the Coastguard Reserves, retain a body of trained men much more numerous and more effective than we now have, or ever had, on whom we could depend. I should, as a further inducement for them to remain in the country, and without entailing any extra expense, keep open for the best of the enrolled men service in the Coastguard, and numerous other employments on shore for which sailors are well qualified, but which are now frequently bestowed upon landmen and other less competent persons, through favouritism.†

* The late Captain Brown, who filled the office of Registrar-General of Seamen in 1859, gave it in evidence before the Commission on Manning the Navy, that 200,000 contributors from the age of 20 of 1s. per month, or 12s. per annum, would produce £120,000, which in itself would be sufficient to pension 6,575 men at 1s. per day. He farther stated, "Statistical data show that out of 150,000 contributors to the Merchant Seamen's Fund only 6,000 become pensioners at 60 years of age."

† "There are numerous situations under the Crown now filled by a class of men not at all superior to our best seamen in the Navy, and often very inferior, that would, if filled only by picked seamen from the Navy of six years' good service

By this system we should have a constant flow of men entering and passing through the Royal Navy, and by interchanging service in the Mercantile Marine, practically remaining in both the great maritime services of this country—a *matter of the utmost importance to us as a nation*, but one which we have not hitherto attempted to work out in a manner to ensure success.

Press-gangs, trampling under foot the rights and liberties of the people, or even laws *requiring servitude* under conditions which are irksome, unjust, and oppressive, are not the means of securing an efficient and loyal force for the hour of need ; and yet, with the exception of the recent Royal Naval Reserve Force, in itself, as I have endeavoured to show, a force too expensive for its equivalent value, they are the only means we have hitherto adopted to make the vast maritime resources at our command subservient to our purpose in the event of war.

But while the scheme I have endeavoured to shadow forth would give at all times a ready command of seamen for the Navy, it would be a great acquisition to the Mercantile Marine, by improving in discipline and cleanliness the men in that service, of which, though I was once one of them myself, I must say a large proportion of them stood, and still stand, sadly in need.

As the young men, who had finished their apprenticeship in the Merchant Service, and had passed through the Royal Navy, would constitute our future reserves, the existing ones, with the exception of the Coastguard and Royal Marines, should be allowed to die out. We should no longer require any of the seamanship or gunnery establishments in harbour or on shore, except for a short preliminary drill of the young men passing from the Merchant Service into the Navy. Youths between sixteen and twenty years of age, trained in the Merchant Service at sea, and young men between twenty and twenty-three (when the mind is most apt to receive scientific knowledge), trained in the Royal Navy afloat, would have instilled into them a knowledge of the duties of both services, which they would never forget, and which, even in their later years, they would, after they have been a few days on board ship, fall into changes being constantly made in crews, as naturally as if they had never left a man-of-war. They might, however, be mustered in districts periodically for drill ; but otherwise I think that their simple enrolment, with proof at stated intervals of their fitness and readiness to serve, should be sufficient to secure the payment of their pension at the age agreed upon. An allowance of five or ten shillings to each, to

give us a most valuable Reserve of our best seamen at no cost whatever to the country." Evidence Captain B. J. Sullivan, R.N., before Manning Commission of 1869, Question 2,254, page 135.

cover expenses when he was required to put in a personal appearance, might make that appearance more certain, and would not materially increase the expense of keeping our Reserves together, and under our control for the purposes of war.

I think with the inducements I have named, apart altogether from the clause in their indentures, requiring a certain amount of service in return for what the State had expended on their education, that these young men when they had finished their apprenticeship in the Merchant Service would, instead of avoiding the Navy as they have hitherto done, readily of their own free will enter for three years service to the number required, as well as for the Reserve, provided they received during their term of service remuneration, all things considered, equivalent to what they could obtain elsewhere.*

As a very large proportion of the apprentices would be drawn from small vessels, where the owners might prefer boys at fifteen instead of at sixteen years of age. I should allow to all shipowners who engaged boys at that age the sum of £22 for each boy he trained at the expiration of his apprenticeship, provided he was ready to serve for three years on board of a man-of-war, should the Admiralty require his services. This allowance would not entail any new expense on the country, as it would only be equivalent to the cost of his education and maintenance in a training-ship. Indeed, an old friend of mine, a member of the late Government, with whom I have frequently talked over the subject of manning, holds an opinion which has been more than once expressed in public, that instead of keeping up training-ships, and maintaining and educating boys at the public charge, it would be better if the Admiralty agreed to pay a suitable sum to apprentices who, having served their time and attained a prescribed standard of fitness, engaged to enter the Navy for the limited period required for training, and also allowed a suitable sum to the master of the apprentice for bringing him up to the standard, the payment to the seamen themselves, either in money, or deferred annuity, or both, being determined by the nature of the arrangement made for their entering the Reserve after their service in the Navy. But I

* Captain Wilson suggests that the first three or six months of the period required to serve in the Royal Navy should be devoted to drilling in barracks on shore, so that it might not be necessary when passed into ships of war to give the young men from the Merchant Service that *extra* drill on board ships which is so obnoxious to them. This could be carried out while they were waiting for the vessels on which they were to be embarked, and the change on shore would afford them a relaxation, so that the first or preliminary drill on board, which is so repugnant to spirited young men, as it is a drill to which older and trained men are not subjected, would be an amusement, if not a pleasure, when carried out amongst themselves and apart from the ordinary duties of a ship-of-war.

question if such a scheme could be practically and beneficially carried out except to the limited extent I suggest. However, either of the schemes would be far more effective than the mode now in force, and allowing for extra pay, gratuities, or outfits, pensions, and various contingencies which I have not named, I am convinced that the adoption of either of these schemes would effect a very large saving to the country.

I should further afford facilities for the sons of gentlemen who had passed through the training-ships, or rather colleges, established for the purpose of rendering them competent to become officers in the Mercantile Marine, to pass for a certain term through the ships of the Royal Navy, so that they might learn the art of gunnery, and the drill and discipline necessary for war. They might enter as sub-lieutenants, or in any other somewhat similar capacity; messing with the junior officers in the gun-room. We should thus have in the hour of need an auxiliary force of merchant officers as well as merchant seamen; and by some such arrangement, we should remove one of the great and just causes of complaint in the Royal Navy—that we enter so many cadets as to render, under ordinary circumstances, promotion so slow that a man may be far advanced in life before he becomes a lieutenant, and grey-haired when a commander, even if he reach that rank, besides passing a large portion of his time on unproductive half-pay.

Such is the outline of the scheme I venture to submit for the consideration of the public, and, I hope, of the Government, so far as regards manning, the cost of which, when in full operation, I may summarise as follows:—

Training 6,000 boys	£200,000
Allowance of £10 to each seaman entering the Navy from Merchant Service, say, 3,000 annually ...	30,000
Appropriation for pensioners to 100,000 enrolled and Reserve men, allowing that every man entered the Reserve Force	125,000
Allowance to cover cost of enrolled or Reserve men making their appearance at the different record offices	50,000
	<hr/> £405,000

In my introductory article, I called attention to the number and description of our ships of war, and I ventured to express an opinion that, however formidable we might be in ironclads and huge floating citadels, we had no means of affording sufficient protection to our vast and wide-spread maritime commerce or to our great commercial depôts. I further remarked that the cost of maintaining the system of convoy

adopted by our forefathers would now be so enormous—even if it were practicable, which I think it would not be—that we should consider some well-devised system whereby our merchant ships would, in a great measure, be able to defend themselves when the necessity arose.

More than twelve months ago I had a conversation on this subject with Mr. James Laing, of Sunderland, a gentleman of much sound sense and great practical experience as a shipbuilder; the result of that conversation was that steam ships of from 1,200 to 8,000 tons register tonnage could, at an extra cost of from £700 to £1,200 each in the course of their construction, be built of sufficient strength to carry at the bow and stern 6-ton guns, carrying 120 lb. shot. Captain Wilson, to whom I am indebted for most of my information about modern naval tactics, informs me that shot from such guns could be propelled to a distance of three miles, that they would perform good practice at two miles, that in clear and calm weather they would be safe to hit once in four times at a mile distance, though probably not more than one in ten during the smoke of war at the distance of 1,000 yards. Nevertheless, these guns would be most effective armaments, and I question if their shot at close quarters, or even moderate range, would not penetrate most of the ironclads of foreign nations.*

Anxious to make myself, as far as I could, master of this subject, I mentioned to Lord Clarence Paget, when he and Mr. E. J. Reed paid me a visit in the course of this autumn, the scheme for manning I had in view, and asked their opinion especially on the point, how merchant ships could be made to protect themselves in the event of war. While giving a general approval to my then crude scheme, Mr. Reed was of opinion that however valuable these heavy long range guns might prove, he thought that a merchant ship fitted to carry four 64-pound guns, which would not exceed the cost in the original construction of the vessel estimated by Mr. Laing, would be even more effective for the purpose of defence.

That question, however, I must leave naval officers, shipbuilders, and gunners to decide. What I now contend for is that if Government voted the sums I have named to any owner of a steam vessel of a certain size and speed who was disposed to construct his ship so as to be able to carry either of these armaments when required, and agreed to retain her under the British flag, we could, for a comparatively insignificant sum, produce an auxiliary fleet that would go far to effectually protect

* All the experiments show that a 6½-ton, or 7-inch gun, with a charge of 30lbs. and a projectile of 115lbs., penetrates at 1,200 yards through a 4½-inch plate, with an 18-inch wood backing; that at 600 yards it penetrates through 5-inch iron plates, and 10-inch teak backing; and at 300 yards through 6-inch iron plating, and 20-inch oak or teak backing.

our commerce, and, in the event of war, would render services of inestimable value to the nation in other respects. I cannot suppose that shipowners would object to this extra weight in the construction of their ships, if they were reimbursed the original cost, as they would be compensated for the extra weight by the extra strength, especially if applied at the fore-and-after ends, where merchant steamers are generally weaker than they should be in proportion to the strength of the other portions of their hull, and where extra strength is so essential in the case of collision.

I see that this question has been mentioned within the last few months by the First Lord of the Admiralty, and by Mr. Brassey,* Captain Wilson, and others in the discussions of the United Service Institution and elsewhere; but the subject does not appear to have been followed up to the full extent of the object I have in view. Some writers and speakers very properly object to these schemes on the ground of the encumbrance to merchant steamers carrying in peace huge implements of war, and therein I entirely agree with them. But all I suggest is that our largest and swiftest steamers could be advantageously constructed to carry them when required, and that would only be in the event of war, where it would be necessary to protect our seaports, and especially our commerce afloat, and then the nation would derive to the full extent the advantages of the combined schemes I have ventured to suggest. When that contingency arrived, I should supply them with the necessary guns and ammunition from our arsenals at home and abroad. Steamers in our home ports could thus almost immediately on the declaration of war be equipped, and those which were abroad at the time could receive their armaments from our nearest naval stations in the Mediterranean, Canada, India, Australia, China, and the Pacific.

Some parts of their crews, if not the whole, having passed through the training I have suggested, would understand how to work these guns, and thus we could almost instantly produce in all parts of the

* Mr. Brassey, who recently read an interesting paper on this subject at the United Service Institution, remarks, "There are included in our merchant navy eight steam ships of 3,000 tons and more, 24 of 2,500 to 3,000, 55 of 2,000 to 2,500, 165 of 1,500 to 2,000, and 167 of 4,200 to 1,500 tons." We could thus turn out almost instantly in the emergency of war upwards of 400 armed ocean steamers of from 1,200 to 4,000 tons each; and if necessary to extend our auxiliary force we could turn out somewhere about 12,000 steamers of between 50 and 200 tons, which, if furnished with guns or used to carry torpedoes, or tow torpedo boats, would in themselves present such a guard to our shores and harbours that the nations of Europe combined would think twice before they attempted to blockade our ports, much less invade us. The Whitehead torpedo is a weapon especially well adapted for the protection of merchant ships, and if carried by such vessels during war, that force would become most valuable for offence as well as defence.

world an auxiliary force for the purposes of defence or war, which no other nation could do unless it possessed similar facilities and had a Merchant Service of equal dimensions, which all other nations combined do not possess. We could thus present a front which would in reality bid defiance to "the world in arms" against us.

Of course to carry out these arrangements, innumerable details would require to be considered; but, so far as I can ascertain, they are of a nature which could be easily overcome by the executive officers of the Admiralty, practically familiar with the subject. Objections might also be raised to bringing into our training-ships the lowest order of boys, a few of whom came from reformatories and had been convicted of crime, however trivial. But they are now separated by the existing systems, which I desire to see continued and extended; and if a boy bore a good character while he was in the training-ships, I should not send him forth with a former brand on his forehead which his good conduct had obliterated. We do not ask in our dealings with mankind the origin of those persons with whom we have transactions; so long as we find that they have borne for many years an unimpeachable character, and are honourable in their dealings, we care not whether they are the sons of peers, peasants, or even convicts. If a boy at the age of sixteen were still bad, I should inform the shipowner about to employ him of his true character; and I dare say many owners, whose vessels are employed in the coasting Baltic or North American trades, would not hesitate to take him with the conviction that the hardships the youth would have to endure in these trying trades would soon drive out of him any wicked propensities. But if no such employment could be found, I should endeavour to dispose of him in some other way.

I have now said all I have for the present to suggest on the question of manning; but as a great political question, to which I have already incidentally referred, is to be again raised in Parliament—I refer to the effect which the Declaration of Paris, of 1856, would produce, in the event of war, upon our maritime power and commerce—I shall, in the ensuing and concluding article, endeavour to deal with that subject.

W. S. LINDSAY.

(To be continued.)

ON THE INTERNATIONAL REGULATIONS FOR PREVENTING COLLISIONS AT SEA, AND THEIR APPLICATION TO SCREW-STEAMERS.

IN the Report of the Committee appointed by the Admiralty, the Board of Trade, and the Trinity House, to consider the Regulations for Preventing Collisions at Sea (Rule of the Road at Sea), which has been returned to an order of the House of Commons on 22nd February, 1876, there is an observation, to which we attach the highest value, in dealing with the question of altering any existing rules. "We consider it of great importance," the Report says, "that these rules, which are now well understood, should continue unaltered in substance; but there are some points in which they require elucidation, and there are other points, in which our own experience and the suggestions above referred to have shown, that additions are necessary, and it is for these that we have endeavoured to provide." The Committee have accordingly suggested certain additions in regard to signal-lights and sound-signals, and have re-written certain articles so as to make their meaning more distinct, whilst, in order to meet the practice of other nations, words have been added in Article 15 of the rules, as amended by the Committee, "to make it clear that the English term 'port helm' is equivalent to altering the course of the ship to starboard, and *vice versa*."

The amended rule, as proposed by the Committee, which we shall speak of as the Board of Trade Committee, is in these terms: "If two ships under steam are meeting end on, or nearly end on, so as to involve risk of collision, each shall put her helm to port, or in other words, shall alter her course to starboard, so that each may pass on the port side of the other."

The corresponding article of the existing International Steering and Sailing Rules, as settled under the Order in Council of January 9, 1863, which are printed in the same return to the House of Commons, was in these terms: "If two ships under steam are meeting end on, or nearly end on, so as to involve risk of collision, the helms of both shall be put to port, so that each may pass on the port side of the other."

It is obvious on comparing this rule with the proposed rule as amended, that the additional words, viz., "or in other words shall alter her course to starboard," are intended to elucidate the effect which the porting of the helm is intended to produce, namely, that the course of each vessel is to be altered to starboard.

When the existing rules under the Order in Council of 1863 were framed, it was probably never contemplated that any conflict could arise between the end in view and the means enjoined to secure that end; nor

does it seem to have occurred to the Board of Trade Committee, whose report has been recently laid before Parliament, that the means enjoined in Article 15 of their amended rules are not calculated to insure in all cases of vessels under steam the effect intended by the Committee, namely, that the course of each ship shall be altered to starboard, so that each may pass on the port side of the other ; in other words, it has probably not been brought under the consideration of the Committee that in the case of screw steamers the "port helm" rule in approaching will not always secure the observance of the "port side" rule in passing, if strict conformity is required to another of the steering and sailing rules. This latter rule, which is contained in Article 18 of the amended rules, is in these terms : "Every steamship, when approaching another ship, so as to involve risk of collision, shall slacken her speed, or if necessary, stop and reverse." The language of this rule does not differ from the language of the existing rule under the Order in Council of 1863, so that it may be assumed that the Committee did not consider the words "or if necessary" to require any elucidation. It appears, however, that at the meeting of the British Association for the Advancement of Science, held at Bristol in the autumn of 1875, Professor Osborne Reynolds, of Owen's College, Manchester, has called the attention of the Association to some remarkable experiments which he has recently conducted upon models of screw steam-vessels, from which it appears that in a screw steamer, when the screw is in motion, the direction in which the rudder tends to turn the ship depends on the fact whether the screw is driving a-head or a-stern, and is independent of the actual motion of the ship through the water. For instance, "if when a ship has headway on the screw is reversed, then the action of the rudder is the same in direction as that of a ship going a-stern ; or if the ship has sternway on and the screw be started to drive her a-head, then the rudder acts as if she were going a-head." These results were so striking in their bearing upon the question, whether the most advisable rules for the prevention of collisions at sea have as yet been devised, that a committee was forthwith appointed, consisting of Mr. James B. Napier, Sir William Thomson, and Mr. W. Froude, with Professor Osborne Reynolds as secretary, for the purpose of carrying the investigation further, more particularly with a view to ascertain if the same results would be obtained when the experiments were made with full-sized ships. The Committee accordingly issued a circular, inviting the assistance of such shipowners and shipmasters as might be willing to aid them ; and as it is desirable that all further experiments should be uniform, and should be conducted on the widest scale on a question in which all nations have a common interest, and respecting which all nations should satisfy themselves that there is a necessity for some further amendment of the international rules of navigation agreed upon by their Govern-

ments, we set out the terms of the Circular in the language of the Committee:—

“In order to collect sufficient data to establish a general conclusion, the Committee are anxious to obtain the assistance of such shipowners and captains of ships as may be willing to aid them.”

“The Committee accordingly ask that certain trials and observations may be made, and the results together with name, size, tonnage, and condition of loading of the ship as well as the depth of immersion of the screw, the date, and the name of the officer in charge may be forwarded to Professor Reynolds, Owen’s College, Manchester, or to any member of the Committee.”

“The following are the trials requested:—

“Trial 1.—That when the ship is going full speed a-head, the screw should be suddenly reversed, and the rudder be put hard over, as if to turn the ship to starboard of her course, and careful notice be taken as to the way in which the ship turns before all headway is lost.

“Trial 2.—The same to be repeated with the rudder set in the opposite direction.

“Trial 3.—That, when the ship is going fast a-stern, the screw should be suddenly started to drive her a-head, and the rudder put hard over to the same side as in Trial 1.

“Trial 4.—Trial 3 to be repeated with the rudder in the opposite direction.

“Trial 5.—That the ship should be driven full speed a-head with the helm amidships, and notice be taken as to the direction in which the ship turns under the action of the screw.

“Trial 6.—That the ship should be driven full speed a-head, and then the screw be reversed with the helm amidships, and notice be taken in which direction the ship turns.”

The above circular bears date May 3, 1876, so that it is obvious that the subject of the peculiar steering qualities of screw-steamers had not acquired its present prominence, at the time when the Report of the Board of Trade Committee on the amendments proposed in the Rules of the Road at Sea was drawn up.

The Committee of the British Association have meanwhile prosecuted their practical investigation of the subject by experiments with three vessels, which have been courteously placed at their disposal by private owners. The vessels are respectively the *Valetta* of 80 tons, belonging to the Earl of Glasgow, and commanded by Captain R. Hunter; the *Hopper* barge, No. 12, belonging to the Clyde Navigation Trust, and commanded by Captain J. Barrie; and the *Columba*, a steam yacht belonging to His Grace the Duke of Argyll. The experiments with the *Valetta* took place on 6th June last, between Wemyss Bay and the

Cumbræ, and were conducted by Mr. James R. Napier, Mr. J. T. Bottomley on the part of Sir W. Thomson, and Professor O. Reynolds. Four observations were taken on this occasion with the helm of the *Valetta* to port, two with her head to wind, and two before the wind; and similar observations were taken with her helm to starboard. The screw in this case was right-handed. The mean results were as follows, in the language of the Report:—

“With the helm ported (which had the engines been going a-head would have brought the ship’s head round to starboard at the rate of nearly two degrees of the compass in a second), the vessel at first, while the screw was turning but slowly, commenced turning to starboard, and had turned through five degrees in nine seconds. She then commenced turning to port, and in sixteen seconds more, when she had nearly lost all way, she had returned thirteen degrees to port, or about eight degrees to port of her original direction—that is, in the opposite way to that in which she would have turned, had the screw been kept on a-head.”

With the helm to starboard at the end of ten seconds she had turned through six degrees of the compass to port, and in fourteen seconds more, when she had nearly lost all way, she had come back fourteen degrees to starboard of her original direction—that is, as before, in the opposite way to that in which she would have turned, had the screw been kept on a-head.”

The experiments with the *Hopper* barge were conducted in a similar manner off Kilcreggan, Roseneath, on June 7th last, the same members of the Committee taking part in them. The screw in this case was also right-handed. The first set of experiments was made with the barge head to wind, and loaded with four hundred tons of mud. The mud was then discharged and the barge put before the wind, and the experiments were repeated. We adopt the words of the Report:—

“When loaded and going to windward with the helm amidships, the barge sheered first to port, and then to starboard. This was apparently owing to the screw churning the water intermittently; when the water was apparently clear, the barge turned to starboard, and when the screw was churning air into the water she turned to port.”

“When the screw was reversed with full way on, and afterwards the helm put hard over, either to port or to starboard, the action of the rudder was always reversed and was very decided. It required one minute for the screw to bring the barge to rest, and during that time she turned from thirty-five to sixty degrees, moving slowly at first, and more rapidly as her speed diminished.”

“The reverse action of the rudder was therefore much more decided than in the case of the *Valetta*, which was accounted for by the fact that the screw was reversed full speed at once, the engineer being an old

locomotive engine-driver, accustomed to reverse suddenly, besides which the barge being much heavier allowed more time for the operation."

The experiments with the steam yacht *Columba*, the property of his Grace the Duke of Argyll, were conducted on June 29th on Gare Loch, and they were witnessed by Mr. James R. Napier, and his son Mr. Robert T. Napier. The *Columba* was fitted with a Griffith screw. The following are the terms of the report :—

"When this vessel was going full speed a-head (about ten knots), the engines were reversed and her helm immediately put to starboard; the vessel turned to starboard until her forward way was lost, the time between the reversal of her engines and the stoppage of the ship being about one minute."

"When the vessel was going full speed a-head, the helm was set to port, and shortly afterwards the screw was reversed. The vessel turned to starboard at first, and then to port, until all way was lost. The turning to starboard at first was the natural result of the helm being ported before the screw was reversed."

"In the trials of this ship no measurements were made of the angles turned through. The direction of turning, however, was the same as before, the reversing of the screw at once reversing the effect of the rudder."

"In all three of these vessels, therefore, the same effect on the steering was produced by the reversing of the screw when the vessel was at full speed."

We have designedly omitted some portions of the Report which is signed by James R. Napier, W. Froude, J. T. Bottomley, and by Professor Osborne Reynolds, as secretary, because those portions are not so much additions to, as developments of what we have already stated, and they contain reference to diagrams which we are not able to reproduce.

The forthcoming Report of the proceedings of the British Association during its last meeting at Glasgow in September last, will, no doubt contain the Report *in extenso*, accompanied with the diagrams, and also supplemented by the communication made by Professor Osborne Reynolds on the investigation of the steering qualities of ships.

This communication, although it has not been hitherto printed *in extenso*, was brought to the attention of the public in the *Times* newspaper of September 14th last, and the importance of the topics touched upon by the Professor has not escaped the vigilant regard of the German ship-owners and ship merchants. At the recent Conference of the Association for the reform and codification of the Law of Nations, lately held in the Ancient House, City of Bremen, the subject of what had transpired at Bristol in 1875, and of the Report presented to the British Association

at Glasgow in the present year was brought under the consideration of the meeting on 26th September last by Herr von Freeden, of Hamburg, member of the German Reichstag, more particularly with reference to the Board of Trade enquiry into a fatal collision off Ilse-Craig, between the steamer *Owl* and the schooner-yacht *Madcap*, which was conducted in Liverpool in the month of August last. This enquiry disclosed one of those embarrassing cases for seamen in which a dim light was first seen nearly a-head on the port bow of the steamer at the distance of about a mile-and-a-half, and which was made out to be a green light when at the distance only of three or four ships lengths, there being at that time a heavy head-sea on, and the look-out-man, who was generally on the fore-castle-head, being on the bridge of the steamer. The screw of the steamer was at once reversed, and her helm put hard to port in order to bring the steamer's head to starboard, notwithstanding which the vessels came into collision, and the yacht was sunk. The evidence of the officer in charge of the steamer was to the effect that if he had starboarded his helm at the time he gave the order "hard a-port," the steamer would have gone right over the yacht, and Professor Osborne Reynolds, in commenting on this case, has suggested that the porting the helm of the steamer at the time of reversing the screw, most probably carried the head of the steamer round to port, and so brought about the collision which the porting of the helm was intended to prevent.

These scientific conclusions on the part of eminent naval engineers are calculated to cause alarm to the great shipping interests, more particularly when it is contended by the same authorities, that in the case of a screw-steamer, to reverse her screw according to the existing rules, is positively to disable her rudder from doing its proper work in altering the course of the steamer with the best chance of avoiding a collision. The Bremen Conference having discussed these hitherto unforeseen difficulties which beset the navigation of screw-steamers, adopted a resolution, that, "It is the opinion of the Conference that the existing international rules for the prevention of collisions at sea are not of a satisfactory character, and that it is desirable that the Governments of the Maritime States should take further counsel together, with a view to amend those rules, and to adapt them more carefully to the novel exigencies of steam navigation."

The most formidable fact to which the experiments conducted by the Committee of the British Association seem almost conclusively to point, is that as regards a screw-steamer, the ship will turn faster, and for an angle of thirty degrees, in less room, when driving full speed a-head, than with her engines reversed, even if the rudder is rightly used; and Professor Osborne Reynolds goes on to say, that when the obstacle is too

near to admit of stopping the ship, as was done in the case of the *Ohio*, mentioned in his Paper of the preceding year, the only chance is to keep the engines on full speed a-head, so as to give the rudder an opportunity of doing its work.

He further goes on to say:—"It is also highly important that the effect of the reversal of the screw should be generally recognised, particularly in our Law Courts; for, in the present state of opinion on the subject, there can be no doubt that judgment would go against any commander who had steamed a-head, knowing that by so doing he had the best chance of avoiding a collision; or who had ported his helm in order to bring his ship's head round to port with the screw reversed. It seems to me, therefore," the Professor adds, "that it would be well if steps could be taken by this Association to bring the matter prominently before the Admiralty, the Board of Trade, and those concerned in navigation."

It appears further, from the Report presented to the British Association in September last, that its Committee had forwarded copies of their Circular to the Admiralty, and that they had received a communication from the Secretary to the Admiralty to the effect, that the Admiralty had ordered the experiments to be made, and that the results should be forwarded. There is no doubt, therefore, that the Admiralty is alive to the importance of the investigation; and, we need hardly say, that an accurate appreciation of the steering qualities of our leviathan ironclads, when their screws are reversing, is only of secondary importance to the correct adjustment of their compasses.

Notwithstanding the remarks of Professor Osborne Reynolds, we hesitate, at present, to offer any suggestion as to the modification of the amended rule, which enjoins that "every steamship, when approaching another ship, so as to involve risk of collision, shall slacken her speed, or, if necessary, stop and reverse." The rule appears to commend itself to the common sense of mankind, and if its observance will not always prevent a collision, it is calculated to diminish the force with which the colliding vessels will come into contact. It may be impossible, in certain cases, to prevent altogether the destruction of property, where it may still be possible to prevent the destruction of human life by diminishing the force of the blow. Besides, as regards the navigation of screw-steamers, it will not be so difficult to deal safely with their helms when their screws are reversing, if the steering qualities of every screw-steamer have been carefully verified before she is allowed to go to sea; and this precaution will probably be found indispensable to the general safety of navigation, seeing that the employment of the screw-steamer for the purposes of trade has almost superseded the use of the paddle-wheel steamer. But we venture to suggest that the altera-

tion proposed by the Board of Trade, in Article 15, of the amended rule, may be with advantage carried further without trespassing on the *substance* of the original rule, which was intended to secure that all steam-vessels, when meeting nearly end on, shall so alter their helms as to pass each other on the port side. We have already observed that it is now matter of experiment that in the case of screw-steamers the observance of the "port-helm" rule in approaching each other will not always secure the observance of the port-side rule in passing each other, whereas the observance of the "port-side" rule in passing is the true element of safety, and is declared to be the real object which the rule is intended to secure.

The amended rule, as proposed by the Board of Trade, is in these words—Article 15: "If two ships under steam are meeting end on, or nearly end on, so as to involve risk of collision, each shall put her helm to port, *or, in other words, shall alter her course to starboard*, so that each may pass on the port side of the other." The words in italics have been added according to the Report laid before Parliament, to make it clear that the English term, "port helm," is equivalent to altering the course of the ship to starboard, and *vice versa*. This alteration would probably have been sufficient to meet the suggestions of the French Government, that the term "port helm," as understood amongst French seamen did not carry with it the meaning which was intended by the English authors of the rule. But a more serious difficulty has been disclosed by the recent experiments as to the steering qualities of screw steamers, that the porting of the helm in their case will not always secure the effect intended by the English authors of the rule. As, however, all parties concur in the effect which the rule is intended to secure, there seems good reason why the words should be retained in the rule, which have proved to be of ambiguous meaning in foreign countries, and which, if observed in the sense intended by the English authors of the rule, may prove in certain cases to be the wrong means for securing the desired end. We venture, therefore, to suggest that the words "each shall put her helm to port, or in other words," should be struck out of the amended rule, and that it should stand thus :—

"If two ships under steam are meeting end on, or nearly end on, so as to involve risk of collision, each shall alter her course to starboard, so that each may pass on the port side of the other."

It may seem presumptuous at first sight, for a jurist to criticise steering rules, which have been approved by a Committee, of which the president was the late Sir Frederick Arrow, and of which other Elder Brethren of Trinity House were members, and whose colleagues were appointed by the Admiralty and the Board of Trade; but it must be

remembered that these rules are intended to become *law*, and that the experiments above alluded to, tend to show that the law, if framed upon those rules, may, in certain cases, work great wrong, in a manner not contemplated by the Board of Trade Committee. Besides, a duty has devolved on the President of the Conference at Bremen to take measures that the subject shall, as far as lies in his power, receive due attention, and as he is aware that the *Nautical Magazine* circulates largely in the United Kingdom and on the Continent, he has thought that the publication of these observations in its columns would be the most likely way to promote further investigations on the subject, and to secure a common concert amongst shipowners and shipmasters in urging their respective Governments to co-operation in the adjustment of the existing international regulations to the novel exigencies of steam navigation.

TRAVERS TWISS,

President of the Conference at Bremen.

THE NORTH SEA CANAL.—After eleven years' labour, this remarkable engineering work has been completed, and a great ship canal between Amsterdam and the North Sea is now opened. There is no telling how much benefit Amsterdam may derive from this. The fifty miles' dreary journey from Nieuwediep will now probably be very little used, and the new, cheaper, and more commodious fifteen miles' passage be generally adopted. The steamers from London and Hull already are using the new route. We learn from the special correspondent of the *Times* that:—"The tolls at present for the whole passage are 72 Dutch cents for ten cubic metres, which amounts to about 4½d. per registered ton. The harbour dues are 4 cents, that is, four-fifths of a penny. The canal tolls are, however, reduced by one-half in favour of vessels which arrive from any port north of Brest. This provision includes British ports, and is made because such vessels are expected to make frequent trips. Several vessels of a moderate draught have passed through the canal. The *Koning Willem* drew 5.50 metres, or over 20 feet. The Minister of the Interior has now announced that vessels of 5 metres draught (16 ft. 5 in.) will be admitted into the canal at all times except low water, and at low water vessels of 4.20 metres (13 ft. 9 in.) draught. Thus commences the history of the principal engineering scheme of modern Holland, the successful working of which will prepare the way for the next great undertaking, the recovery of the valuable territory at present sunk beneath the brackish waves of the Zuyder Zee."

THE "FRANCONIA" JUDGMENT.

WHEN the case of the *Queen v. Keyn* was referred to the consideration of the Court for Crown Cases Reserved, we examined at some length the legal principles on which it was understood the prisoner's counsel would found their argument against the conviction, and we came to the conclusion that the conviction ought to be affirmed. After lengthened discussion conducted on the side of the Crown as well as on that of the prisoner with singular ability, the Court by a majority of two out of fourteen Judges who heard the argument, have decided that the conviction of Captain Keyn, for manslaughter, was illegal and must be quashed. Notwithstanding the high authority of the Court which has pronounced this decision, and the elaborate nature of their Lordships' judgment, we are compelled to confess that we remain unconvinced, and we cannot but regret that so momentous a question should by a narrow majority of the Judges called upon to decide, be still left, if not in absolute uncertainty, at all events in a virtually unsettled condition. The facts of the case having been admitted, the question before the Court of Appeal was, broadly, whether a foreigner who commits an offence on board a foreign ship, within the three mile limit, and in prosecution of a foreign voyage, is amenable to the law of England. This great question has been decided in the negative. It would be a needless and not very profitable sacrifice of our space to indicate the multifarious authorities on which the Court apparently relied in coming to this conclusion. The lengthened disquisition upon the Admiralty jurisdiction of the realm was for the most part beside the question, because it is well-known that the criminal jurisdiction which the High Court of Admiralty once possessed has long since been withdrawn, and the only remnant of it, if remnant it can be called, exists in the enrolment of the Judge of that Court in the Commission by virtue of which the Central Criminal Court holds its Sessions for the trial of criminals. Nor need it be disputed that by the general consent and law of nations a foreigner cannot be held criminally responsible to the law of a nation to which he does not belong for acts done beyond the limits of its territory. This question has been disposed of by the American jurist Story, in a few forcible words which embody the views of publicists everywhere, "No sovereignty" says that high authority "can extend its process beyond its own territorial limits, to subject either person or property to its judicial decisions. Every question of authority of this sort, beyond this limit, is a mere nullity and incapable of binding such persons and property in any other Tribunal." But then comes the question, is the three mile limit—within which the collision between

the *Franconia* and the *Strathclyde* admittedly occurred—outside the territory of England, so as to oust the jurisdiction of the English Courts of Law, and bring the case within the general law laid down by the jurists? Now, that the three mile limit is a reality and not an idea, and has been acted upon as conferring jurisdiction in our tribunals, is readily proved by reference to the authorities, and by the experience of our Courts. This three mile limit owes its origin to a suggestion of the jurist Bynkershoek, that the sea surrounding the coast to the extent of cannon range—fixed at a marine league—should be treated as belonging to the state owning the coast,—and for nearly two centuries this suggestion has been adopted and acted upon, until it may be said to have become a part of the recognised law of nations. It is true there have been, and there may continue to be, differences as to the practical application of the rule, both as regards the particular distance and the degree of sovereignty and dominion to be exercised within it, but the rule exists, and has what may be termed the force of public law. But, says the Court of Appeal—and here is the foundation on which their Lordships' decision apparently rests—"It may be asserted without fear of contradiction, that the position that the sea within a belt or zone of three miles from the shore, as distinguished from the rest of the open sea, forms part of the realm or the territory of the Crown, is a doctrine unknown to the ancient law of England, and which has never yet received the sanction of an English Criminal Court of Justice." This may be so; but it is equally incontestible that the right to jurisdiction within the three miles is founded on the principle of sovereign and permanent appropriation, though it has not been successfully asserted beyond that limit. But let us take the ruling of the Court of Appeal for Crown cases reserved, that our Courts have no criminal jurisdiction over foreigners within the three mile limit, and see what it leads to. If this jurisdiction cannot be asserted over foreigners, "within a belt or zone of three miles from the shore," then it cannot be asserted within one mile, or, for that matter, within one hundred yards. It comes to this, then: that any outrage may be perpetrated on British subjects or their property on board a foreign ship passing along our shores; but if the ship is in pursuit of her voyage, and her destination is foreign, she cannot be interfered with, and the perpetrator or perpetrators of the outrage, however heinous their crime, cannot be made amenable to British Law. If, however, the outrage be committed in port, although the limits of some ports are greater than the territorial limit, and whatever the destination of the ship, the criminal jurisdiction is founded, and the offenders would be amenable to justice. But the inconsistency and impolicy of the law, as laid down in this judgment, is rendered still more apparent by a consideration of the fact that although the existence

of a criminal jurisdiction in respect to foreigners within the three mile limit is denied, a civil jurisdiction is asserted and exercised. Nothing is more common than an action in the Court of Admiralty or in a Court of Common Law against a foreign ship and her owners for damage inflicted upon a British ship within the three mile limit. On what principle should the jurisdiction which is asserted and exercised in the one case, be denied in the other? It is urged no doubt that a foreigner who commits an outrage in foreign waters, may be demanded under the stipulations of an Extradition Treaty. In the first place—the States with which England has Extradition Treaties are few—Extradition contemplates a crime committed by a fugitive from justice. Secondly and thirdly, the subjects of the respective States parties to these Treaties are generally excepted from their provisions. All States are naturally jealous of the liberty of their subjects and of the administration of their laws—and for offences committed within their territory they claim the right of jurisdiction—wherever the offender may be found. The difficulty in which the decision of the Court for Crown Cases reserved places us, can only be cured by legislation. If Parliament think proper to assert and confer on our Courts a criminal jurisdiction within the three mile limit, that jurisdiction must of course be exercised. It would seem unquestionably to be the duty of those who frame our laws not to permit such a state of things as on the authority of the Court of Criminal Appeal exists in this country. It may be that some difficulty will be experienced in obtaining the concurrence of foreign States to a law which will render their subjects amenable to our criminal law, but such a consideration must not be suffered to stand in the way of the performance of what has now become an imperative duty on the part of the Legislature.

THE ARCTIC EXPEDITION.

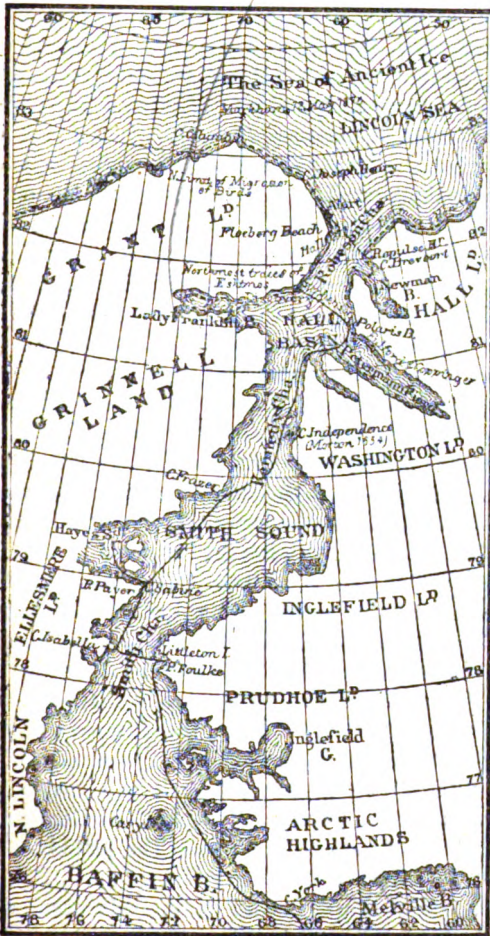
ALTHOUGH the daily press has naturally anticipated us in the details of the proceedings of the Arctic Exploring Expedition, which, with its gallant crews, has since the publication of our last number, returned in safety to our shores, we cannot but think that a brief summary of the eventful voyage may prove acceptable to our readers, and at the same time we most sincerely congratulate Captain Nares and his companions on the success with which their exertions have been crowned. Although the Pole has not been reached—a consummation which few but enthusiastic visionaries anticipated—still the facts have been ascertained that an approach to the

Pole in the direction of Smith Sound is considered impracticable, and that instead of an open sea surrounding the Pole, a sea of ice exists, and that ice of such an age as to warrant the belief that it is not the produce of a season, but is ever more or less there, and is impassable in that direction either for boats or sledges.

The Expedition left Upernivik on the 22nd July, 1875, and after suffering some delay from fogs in which the *Alert* grounded, fortunately without injury, Captain Nares decided to strike directly out and try to force his way through the middle ice in Baffin Bay. This he did successfully, and as was anticipated from the previous favourable season, no ice of any consequence was met with from Melville Bay to Smith Sound. The ships reached Cape York in the remarkably short period of three days. They here communicated with the Esquimaux, who came out to the ships over the ice in their dog sledges. After a short delay at Cape York they proceeded to Port Foulke, the winter quarters of Dr. Kane, and leaving the next day, steamed across the Strait to Cape Isabella, fifteen miles to the northward of which place they first sighted the ice, and were soon beset. They were then detained three days in Payer Harbour, near Cape Sabine, waiting for the ice to open. From Payer Harbour they passed into Hayes Sound, and an attempt was made to pass westward of the island at the entrance, in which they were not successful. On the 6th August, the ships pressed northward towards Grinnel Land, and were caught in the pack; after this, progress was an incessant struggle, advantage being taken of every lane of water between the ice and the land, as the wind or current acted on the ice, which quickly closed behind the ships when they had passed, rendering retreat as difficult as progress. It was not until the 25th August that the Expedition reached a well-protected harbour (afterwards named "Discovery Bay") to the westward of Cape Bellot, on the north side of Lady Franklin Strait, in latitude $81^{\circ} 41'$, this position being three miles to the northward of "Thank God Harbour," in which the *Polaris* wintered in 1871-2, the hills surrounding which could be seen on the opposite side of the channel. Here the *Discovery* was secured for the winter, whilst the *Alert* pushed to the northward, meeting with increasing difficulties and thicker ice.

At noon on the 31st August, the *Alert* had reached a higher latitude than any vessel had ever before attained, and the event was celebrated by hoisting the colours, &c. Rounding Cape Union, the eastern point of Grant Land, Captain Nares could find no harbour in which to secure the *Alert* for the winter, and as the ice closed in round the ship, he was compelled to remain where he was, on an open coast, in latitude $82^{\circ} 27'$. Fortunately the shore off which the ship was hemmed in was shelving, and several large floe-bergs taking ground outside her, acted as a break for the ice that would otherwise have probably crushed her, while some

cliffs afforded shelter from the north and east. Before reaching these so-called winter quarters, Captain Nares had made the negative discovery that President's Land, seen and mapped by Hall in latitude $84^{\circ} 20'$, has no existence; it was also ascertained that Lady Franklin Strait is much narrower than previously charted, and instead of being a Strait is a deep arm or fiord. Petermann fiord terminates, like other Greenland fiords, in a glacier, and Robeson Channel is not nearly so wide as recorded. Hayes Sound was not examined, but is also supposed to be much narrower than delineated.



The ships were now in their winter quarters, at a distance of about fifty miles from each other. An attempt was at once made from the *Alert* to communicate with the other vessel, but the difficulties were so great, combined, we suppose, with the inexperience of officers and men in sledge travelling, that they did not succeed, and of the twenty-one individuals comprising the party, one-third returned to the ship severely frostbitten, rendering amputation necessary in three of the cases. The sun now sank below the horizon, and did not reappear for 142 days, and winter in the Arctic regions had fairly set in. Previously to this, the usual precautions had

been taken by both ships in landing boats, stores, and provisions for six months, and also in the erection of observatories and houses for various

purposes, the *Discovery* not forgetting a theatre (Royal Alexandra), 60 feet long by 27 broad, with the usual appliances, green-room, stage, &c. The decks were covered with snow two feet thick to economise heat below. The cold was very severe, and frequently ranged 60 degrees in a few hours; the greatest cold experienced was 74° below zero, or 106 degrees below the freezing point. For two weeks 59° below zero was the minimum registered.

The winter season brought the usual Arctic gaieties on board the ships. Schools were established at which the officers acted as teachers to their willing scholars, the men, of whom, doubtless, many have returned to England far more wise than when they left. Plays were rehearsed and acted, penny readings (requiring no pence), lectures, concerts, recitations, and all the varied ways of amusements, and also of more solid employment that could be devised were the order of the *night*, so the time did not hang heavily on their hands. Christmas came on them almost before they expected it, and it was right royally and loyally kept, the numerous presents brought from England being then distributed, and eliciting ringing cheers in the icy wilderness for the several donors.

With the arrival of the new year, preparations were made for spring travelling, and on the 12th of March a dog sledge started from the *Alert* to communicate with the *Discovery*. On the second day of their journey, Hans Christian Petersen, the Danish interpreter, was taken ill and severely frostbitten, the temperature being then 40 degrees below zero, they were, therefore, obliged to turn back, his two companions Lieutenants Rawson and Egerton literally keeping the poor fellow alive by alternately lying by his side, communicating their animal warmth to him, but it was of no avail, for on their return to the *Alert* the fore part of both his feet had to be amputated, and after struggling with life for two months, he died. The week following their return the same two officers succeeded in establishing the communication between the two ships, the accomplishment of which relieved Captain Stephenson and his companions from the doubt and anxiety relative to the safety of the *Alert*. After this the communication between the two ships was frequent, and the road, such as it was, was named "High Street." From the *Discovery* Captain Stephenson visited Polaris Bay, and did all honour to the memory of his brother Arctic traveller "Hall," by hoisting an American ensign and firing a salute, as a brass tablet, previously prepared in England by Captain Nares and himself, was fixed on the grave. The plate bore the following inscription:—"Sacred to the memory of Captain C. F. Hall, of the U. S. ship *Polaris*, who sacrificed his life in the advancement of science, on November 8th, 1871. This tablet has been erected by the British Polar Expedition of 1875, who, following in his footsteps, have profited by his experience."

The commencement of April found everyone at work, the ships being left in the charge of a few civilian officers and men. Sledges were continually starting and returning, conveying relays of provisions to depots for the use of the more advanced sledges on their return. Lieutenant Aldrich started to the west, tracing the north coast of Grant Land for a distance of 220 miles, and finally reached a position in lat. $82^{\circ} 10' N.$, long. $86^{\circ} 30' W.$, the most northern land being Cape Columbia, in lat. $83^{\circ} 7' N.$, long. $70^{\circ} 30' W.$ This party not arriving at the time expected, a relief sledge was sent to meet it, and not before it was necessary, as, out of a crew of seven, Lieutenant Aldrich and one man alone remained at the drag ropes. The northern division, or that which was destined to make its way towards the Pole, under the charge of Commander Markham and Lieutenant Parr, with a selected crew of 15 of the best men, started from Cape Columbia under very exceptional circumstances. From a lofty look-out station no land could be seen to the northwards for a distance of 50 miles, and nothing could be certain as to the movements of the ice, so it was necessary for the party to take boats, not only for ferrying purposes, but of sufficient capacity for navigation. The state of the ice also, over which the sledges had to travel, was anything but promising. Far as the eye could reach nothing could be seen but rough hummocky ice, similar to that so graphically described by Hayes in his journey across Smith Sound; thus, not only had very heavy weights to be dragged, but the road had to be made by partially levelling the rugged ice. The party started from the coast having two sledges and two boats, with provisions for forty days. It soon became evident that the expedition was hopeless, so far as the attainment of the Pole was concerned, the ice forming ridges through which the party had literally to cut their way, an operation of the most tedious and laborious nature. At times, passages had to be cut of great depth so that the direct progress made did not average a mile a day, and at the end of twenty days, on the 12th May, they had succeeded in reaching a latitude only $18\frac{1}{2}$ miles to the northward of the position of Cape Columbia, or a latitude of $83^{\circ} 20' 27''$ with still a distance of nearly 400 miles between them and the pole. By this time the incessant work had told greatly on the men, and they were in such a state of exhaustion that to persevere would have been fatal to most of them. As it was, it is doubtful if the men could have succeeded in reaching their ship but for the passages they had already cut facilitating their return. When thirty-five miles from the vessel, Lieutenant Parr left the sledging party to obtain relief, which was promptly sent, and this enabled the exhausted party to reach the ship. On arriving, after an absence of seventy-two days, only five out of the seventeen were able to work, the remainder being perfectly helpless, one having previously

succumbed to the hardships, was left in the most northerly grave in the world.

A division from the *Discovery* explored the Greenland coast and found it trend to the north-eastward; Lieutenant Beaumont finally reached a position in latitude $82^{\circ} 18' N.$, longitude $50^{\circ} 40' W.$, from which point he fixed the most northern point of Greenland known, Cape Britannia, in latitude $82^{\circ} 54'$. This division also suffered much and when met by the relief party, the officers and two of the men were slowly dragging their four disabled comrades by relays towards the Polaris depot, but before reaching it the two men were obliged to fall out, leaving the three officers alone at the drag ropes. On reaching Polaris Bay two of the men died, in sight of the hills that surrounded their ship. They were buried near the grave of Captain Hall.

The ice in the polar sea remained compact until the 20th July, when it was observed to move and the movement increased with every tide. On the 31st the *Alert* succeeded in leaving her winter quarters, and on the 12th August rejoined the *Discovery*.

Lady Franklin Sound remained closed until the 20th, when a disruption of the ice enabled the ships to free themselves, and after doing battle with the "thick ribbed ice," as in their progress north, they finally gained open water, and Captain Nares reached Valentia on October 27th.

Although it may have been considered at the outset of the expedition—furnished as the ships were with every conceivable requirement that the ingenuity of man could devise, and with most carefully selected crews—that greater results would have been obtained; yet it must be evident that the failure to reach the Pole, or to reach a higher latitude, is not attributable to any want of pluck or perseverance on the part of the officers and crews. Moreover, the complete results of this remarkable expedition cannot yet be entirely made known; and although the public mind is now chiefly occupied with the gallant but unsuccessful effort to reach a higher latitude, we think that when a calm investigation is made of the details of the expedition and of the results achieved, it will be found that the only conclusion to be arrived at is, that the self-denying courage of the explorers, the moral bravery which enabled Captain Nares to turn back without risking further loss of life when he was convinced of the uselessness of proceeding further, and the value of the results gained for the use of future explorers, are things which help to retain for our country that fame which has been gained for her by brave and noble Britons in days gone by.

THE PORTS OF SICILY.

THE largest, finest, most important, most fruitful, and most celebrated island of the Mediterranean, is Sicily. It is separated from the mainland of Italy by the narrow Strait of Messina, only two miles across, and from Cape Bon, in Africa, by a channel of eighty-five miles in width. Of foreign nations, the first acquainted with it were the Phœnicians, who appear to have carried on a commerce with the inhabitants. The Greeks, soon after, resorted to it for the purpose of colonising. The west and north-west was occupied by the Carthagenians about five hundred years before the Christian era. About a century and a half after, took place the long contest between the Romans and Carthagenians for the possession of the island, on the termination of which Sicily remained in the possession of the former during many centuries, the inhabitants being permitted to retain their own forms and usages. After the overthrow of the Roman power, Sicily was occupied successively by the Greek Emperors, the Saracens, Normans, and French, till at length it became a dependency, first of the crown of Spain, and then of Naples. In 1860, the Sicilians rose in insurrection, and with Garibaldi at their head, defeated the Neapolitans and afterwards annexed the Two Sicilies to the new kingdom of Victor Emmanuel.

In ancient times, Sicily was celebrated for the number, magnitude, and opulence of its cities. Notwithstanding that its population was then probably treble its present amount, it was enabled to furnish vast supplies of corn and other articles of provisions for the use of Rome, whilst there are now few countries in which agriculture and the arts are in so degraded a state. The chief cause for this change may be found in the oppressive restrictions that were for a long time laid on the export of corn. Down to a late period no corn could be exported without leave being obtained from the *Real Petrimonia*, a body that pretended to take an account of the crops, and which determined whether there was to be any exportation; and in the event of its being allowed, it issued, or rather sold, licenses to a few favoured individuals, authorising them to export certain specified quantities. Fortunately, these oppressive restraints have been abolished, but excessive taxation and the want of practicable roads remain the chief obstacles to improvement. The culture of wheat is now to a great extent abandoned for that of rice, flax, and cotton. Around Marsala is the principal district for the vine culture, although, with the exception of the English establishments, little care is in general bestowed on the vintage. Along the north coast, the mountain slopes, and valleys, are almost wholly covered with

olive groves ; though elsewhere they are rare, and do not furnish sufficient oil for the inhabitants. But for the imperfections in the mode of its preparation, the oil of Sicily would be excellent. The manna ash is grown near the capital, and manna not being monopolised by the Government in Sicily, it might be a much more extensive and profitable article of trade than it really is, if there were any public enterprise. The liquorice is found growing wild in several parts of the island, and considerable quantities of juice are exported. The culture of shumac is a good deal attended to, and it forms a principal article of export. The fisheries are chiefly conducted by corporations of fishermen, or moneyed individuals. That at Palermo employs, during the season, from 900 to 1,000 boats, and 3,500 fishermen ; and the produce is valued at from £20,000 to £25,000 a year. The principal fishery is that of the tunny, *scomber thymus*, which is captured much in the manner practised by the ancients. The average length of this fish is from 4 to 8 ft., with a girth of nearly the same dimensions ; yet there are many of still greater size, and the females are always the largest. This fish is gregarious. The shoals enter the Mediterranean early in the year. In the progress eastward the shoal inclines over towards the European coasts, and the tunny is caught in great abundance during May, June, and July ; but the fishing establishments of Sicily, called *Tonnare*, are more lucrative than those of more northern parts. The fishery of the *pescè-spada*, or swordfish, takes place in the Straits of Messina in July and August, and is an equally exciting, yet less brutal, sport than the capture of the tunny. It is calculated that no less than 175,000lbs. of this fish are yearly consumed at Messina alone. A peculiar description of fishing is carried on for coral on the western coast, near Trapani ; also in the Straits of Messina, and on the southern coast, but chiefly off the African shore, near Cape Bon. It is calculated that the quantity annually procured is about 12 quintals, or 2,100lbs. The minerals are important and valuable. Sulphur ranks first ; it is found in great quantities imbedded in blue marl, or in gypsum and limestone, over most of the central and south parts of the island. The sulphur mines have been wrought for upwards of 300 years ; but it is only since 1820 that any extraordinary quantity has been prepared for exportation. Sicily furnishes saltpetre of excellent quality in sufficient quantity for her own consumption, but from want of enterprise, little, if any, is produced for exportation. Rock salt, bitumen, gypsum, and marble of different kinds, are found in various places ; and good salt is made at Trapani, and other coast towns. There are also ores of lead, copper, mercury, and iron, but very few of these are wrought. There are no iron foundries in the island, and iron and tin goods are principally imported from England, lead from Spain, and steel from Germany.

The commercial relations between Great Britain and Sicily have been greatly extended since the year 1884, which is as far back as any precise information can be obtained from the consular archives. The total value of British commerce in that year was £1,064,024, but it has been subjected to great fluctuations—falling as low as £879,410 in 1887—owing to various causes, principally to repeated visitations of cholera, and political disturbances. Since the year 1849 there has been a steady increase from £1,182,885 to £2,582,871 in 1871. The manner in which this trade was distributed shows likewise the relative importance of the different ports, viz.:—Palermo, £811,564; Messina, £1,065,060; Catania, £157,700; Girgenti, £183,026; Marsala, £162,090; Lecata, £61,488; Terranova, £54,794; Mazara, £17,625; Trapani, £7,285; Scoglitti, £6,394; and Syracuse, £5,850.

The goods imported into Sicily from Great Britain and her Colonies, form from one-third to one-half of the entire imports of the island; but the proportions vary year by year. In 1868 they were scarcely more than one-third, in the following year they were more than one-half, and in 1871 they were little more than two-fifths of the entire imports. They consist of colonial goods, a term which comprises also tobacco and petroleum, cottons, both in the piece and in yarn, and mixed with linen and wool, linens, woollens, silks, hardware, drugs, and colours, salt fish, hides, coals, iron, copper, lead, tin, and occasionally cereals. The produce of Sicily exported to Great Britain and her Colonies form from one-third to two-fifths of the entire exports of the island. These consist of sulphur, olive oil, wines and spirits, shumac, which together represent about one-half the total value of all exports, whilst the lesser amounts are to be found in fruit, dried and pickled, lemon juice, oranges and lemons, essences, cereals, silk, cheese, barilla, preserved fish, liquorice paste, manna, sap, salt, &c. The total exports in 1871 amounted to £4,060,987, of which £1,478,872 were to British lands, and £2,587,615 to other countries. Of the latter exports, the greater part is sent to the United States, which in fact consume very nearly as much of the produce of Sicily as do Great Britain and her Colonies. The greater part of the produce, however, sent across the Atlantic is conveyed in British vessels.

At Palermo, in the year 1874, the British shipping that entered the port represented a total of 250,901 tons, of which 282,022 were steam-vessels, and 18,879 sailing vessels, whilst the foreign shipping was 568,825 tons—many of them coasters—both together showing a considerable increase upon former years. The exportation of sulphur, the produce of the mines of Lercara, had been greatly increased, between 12,000 and 14,000 tons having been shipped at Palermo, the greater portion to the United States. Of shumac, about 100,000 bags, equal to

7,142 tons, were shipped to the United States, and about the same quantity to England. At Messina, similar activity prevailed. The value of goods imported was £1,408,974, and exported £1,647,957. The crops throughout the district had been generally good, and cultivation was extending. The olive crop considerably exceeded the ordinary yield, and the silk crop was larger than for ten years past. The quantity of the latter exported, viz., 48,120 lbs., includes the produce of the Calabrian provinces of Reggio, Catanzaro, and Cosenza, which is almost entirely shipped at Messina. Considerable quantities of currants had been brought from the Lipari islands, and re-shipped for Trieste. The trade of Catania with other foreign countries, especially with Greece, Germany, and the United States, is also increasing, although not in the same ratio as that with Great Britain. There exists, also, a steady development of the home trade, or interchange of commodities with other ports of Italy, more particularly with Genoa. At Girgenti, the exports were confined, to sulphur. The British shipping entering the port rose from 65 vessels and 24,220 tons in 1873, to 117 ships of 89,550 tons in 1874. Foreign shipping did not exhibit a corresponding increase, for against 341 vessels of 95,840 tons in 1873, it could only show 346 vessels of 67,327 tons in 1874. The total shipping and tonnage entering the port in the two years were, respectively, 406 vessels of 120,060 tons, and 463 vessels of 106,877 tons. Of the number proper to 1874, 138 were steamers, measuring 68,659 tons, and 325 sailing vessels, of 48,218 tons. In short, trade and industry throughout the island are in a flourishing condition, and general prosperity prevails, in spite of heavy taxation, amounting to 81·24 per cent. on landed property, nearly 80 per cent. on house property, and 14·19 per cent. income-tax, and the equally heavy municipal dues levied on almost every article of consumption.

At the same time that British commerce and navigation are making rapid progress at the sea-ports, British capital is betraying an inclination to flow into the interior, to aid in developing its vast natural resources. Within recent years, several English companies have been established for working sulphur mines, and for obtaining rock-asphalte, which is said to exist in the Val di Noto. That British trade in the island labours under disadvantages cannot be questioned, but there are few of these which do not admit of removal more or less speedily. Some of these disadvantages arise from natural causes; others, from defects in the system of administration, general or local.

Amongst the former class is the want of proper harbour accommodation all along the southern coast of the island. From Trapani at the extreme west, all round to Syracuse on the east coast, there is no port where a vessel of any size can take refuge in bad weather, or can even load or discharge in safety. Even the port of Trapani, though spacious, has

only 18 feet depth of water, so that vessels drawing more must lie out in the roads to take in or discharge cargo. Marsala, the next port, has only 15 feet of water, and the anchorage at that depth is extremely limited. But the want of harbour accommodation is most seriously felt in the sulphur ports of Girgenti, Lecata, and Terranova, on the south, and Catania on the east coast of the island, and this want is productive of great inconvenience and delay, as well as of peril. Girgenti and Catania, it is true, have already small harbours, constructed many years since, but quite inadequate to the requirements of their actual commerce. Lecata and Terranova have absolutely no harbour. At these latter ports, vessels, of whatever size, and at Girgenti those drawing more than 10 feet, are compelled to anchor in the open roads, exposed to all the vicissitudes of the weather, while taking in their cargo; and as winter is the chief season for shipping sulphur, this is a most serious disadvantage.

If a strong breeze springs up, all communication with the shore is cut off while it lasts, and the loading of the cargo is necessarily suspended. Should it blow a gale from the westward—no unfrequent occurrence in winter—ships in the roads have either the alternative of riding it out, with the imminent risk of drifting on a lee shore, should cable part, or anchor drag, or of running out to sea till the gale abates. Vessels are thus often blown off the coast for many days together. This disadvantage, however, is in a fair way of removal. New harbours are in the course of construction at Girgenti, Lecata, and Catania.

Another great disadvantage affecting trade in general, and, therefore, injurious to British commercial interests, is the deficiency of internal communication, which is a serious obstacle to the development of the resources of the island. On not a few spots in the interior, sulphur mines might be worked to great advantage, were there the means of conveying the produce to a port of shipment; but, under present circumstances, it would not pay to extract the ore. It sometimes happens that corn is extremely rare on the coast and in the large cities, so that it has to be imported at high prices from foreign lands, while in the mountain towns, a few leagues inland, it is overflowing the barns, and is used as food for cattle, because there are no means of conveying it to the coast. Notwithstanding that the commerce in such parts of the island has been subjected, year after year, to heavy taxes for the construction of roads, these have yet no existence. This was a crying evil in Sicily under the old *régime*, and it is a crying evil still. In certain districts it will, ere long, be remedied to some extent by the railroads which are now in course of construction. Railroads, however, will be of little service in developing the natural resources of so mountainous a land as Sicily, unless there are also good country roads to feed them. It is the means of communication between the mountains and the

plains, between the interior and the sea, that are so urgently needed in Sicily. There is little doubt that, with practicable roads, and with the vast waste but fertile tracts in the interior brought into cultivation, Sicily would be able to increase her exports of produce manifold.

The future prospects of British trade, Consul Dennis moreover thinks, are by no means gloomy. There is no reason to doubt that its condition for years to come will be one of progress. If in spite of the disadvantages under which it has hitherto laboured it has attained its present dimensions, how much more may we not expect when those disadvantages are removed, as they must be in the new era of progress that has now opened for Sicily? When the vast natural resources of the island are more fully developed by the completion of the railroads now in the course of construction, and by a system of practicable country roads to feed them; when safe and convenient harbours, adapted to vessels of the largest size, are opened for the shipment on all parts of the coast; and when greater security for life and property is enjoyed in the interior, we may confidently expect that the British trade with Sicily will profit largely, and acquire a proportionate development.

THE MERCHANT SERVICE.

(COMMUNICATED.)

THE public attention which has been drawn this year to the state of discipline existing on board English merchant vessels, by the trial of the crew of a vessel flying the English flag, for the murder of their captain and officers, ought not to be allowed to rest until a better state of affairs exists. The remarks of the Judge, before whom the case was tried, were only too appropriate, and the evidence during the trial showed only too plainly the lawless state of affairs existing on board our merchant vessels.

I do not believe that this is an exceptional case, as regards the attitude assumed by the crew against their captain and officers, for in the majority of our sailing vessels, the crews are almost of a similar description. Are the people that insure the magnificent-looking vessels that leave our ports aware of the motley crowd that compose the crew? Surely not; or else means would be taken to prevent vessels leaving port with a mob of ex-lumpers, deserters from the Army and militia, disgraced and incompetent men dismissed from the Royal Navy, West African negroes, Dutchmen, Spaniards, Greeks, and Swedes, shipped a day or two before

sailing, styled on the Articles as A.B. "and ordinary," who come on board the night before sailing, or as the vessel is leaving the docks, more or less drunk and incapable, to be found mutinous and useless when sober. With a crew of this description vessels have to put to sea, and the owners, knowing the state of affairs, *actually wonder* if the vessel is overdue, or eventually never heard of.

The crews of the steamers and vessels of large companies are more respectable, but the masters and officers of such vessels at times find their authority defied, and the greatest trouble in getting necessary work done.

The large number of steamers we find manned with Lascars shows that the masters prefer dealing with these men who are amenable to discipline, to the so-called seamen who crowd the steps of our shipping offices, even if the former are not gifted with the pluck and powers of endurance of the stronger-framed European.

The cause of the scarcity of really competent British seamen, which every year is becoming more and more apparent, is a subject which ought to attract serious attention.

It cannot arise from a want of inducement in the shape of wages, for the men I have described get a rate of pay far in excess of their worth. It cannot arise from a want of proper food, or an objection to the accommodation provided, for both are ample and good. It cannot arise from the treatment on board, for the hands of masters and mates are so bound down by the law that "Jack" is almost more master of the situation than the people he agrees to obey. He knows that the only punishments the master of his vessel can award him are placing him in irons, reducing his pay, and entering the complaints against him in the official log-book. The official log-book has no terrors for him; he most likely prefers even being in irons to going aloft in a breeze, or holystoning decks; stoppage or reduction of pay is really the only punishment that he cares for. He considers it an Englishman's privilege to grumble, and, therefore, growls out his dislike to any work he may be set to, in language more forcible than polite, and if spoken to by his mate or his captain upon the way he is performing his work, he, in nine cases out of ten, abuses them in the most foul and disgusting language. If the captain takes notice of all this, and summons the man before the police magistrate, or consul at the first port called at, in nine cases out of ten the punishment is inadequate to the offence, or else he loses a man by the offender being sent to prison.

The real cause for this scarcity of respectable and competent seamen is, I think, this.

First, a growing dislike on the part of young men, even if educated to the sea, to follow it up as a means of livelihood, if they can get anything

to do on shore, especially when they contrast a sea life with that led by a clerk, mechanic, or even labourer, and the ease with which any fairly educated lad can get employment.

In former days, before education was so widely spread, the lads that were sent to sea stuck to it, because they found themselves both in education and habit unfitted for any other kind of life.

Those that stick to the sea now, join in time that large army of certificated mariners from which shipowners are able to pick and choose, to command and officer their vessels, at a rate of pay far out of proportion to the work done.

To remedy all this, I would suggest that the number of school and reformatory vessels be largely increased; that offices be opened in every town to collect lads for both vessels. Every inducement should be offered to parents in small circumstances to send their sons to the school-ships. The reformatory ships could be easily filled with the waifs and strays we see wandering homeless in the streets of our large towns.

The system of education should be similar to that at present carried out in the few school-ships we have. The lads should be kept in their vessels until they are fitted for the rate of an ordinary seaman, and then drafted to vessels requiring a crew upon a requisition from the nearest shipping office.

Those that are found unsuited for a seaman's capacity might be instructed for a fireman's, servant's, or cook's berth. Every ordinary seaman should be obliged to serve one year at sea before being eligible for the rate of A. B., and an examination should be held by the master of the vessel as to his qualifications.

There should also be an examination for the rate of boatswain, and no man allowed to pass unless of a good and sober character.

Every discouragement should be offered to the entry of foreign seamen. The expenses of the school-ships and reformatory vessels should be defrayed by a tax upon all shipowners, helped by a small subsidy from Government, as there would no doubt be a large addition to the Royal Naval Reserve.

Last, but not least, the standard of examination for masters and mates should be raised, so that none but those who are well and soundly educated could hope to obtain a certificate. By this system the ships and steamers of our Mercantile Marine would in course of time be well and properly manned. Shipowners would gain by there being probably fewer disasters, and Government would have a large body of well-conducted men to call upon in case of war. In addition to this I consider that a scale of punishments, something similar to that used on board of a man-of-war, be authorised, and every possible means supplied to the master of the vessel to enable him to carry out any punishment he may

award an offender. A marine magistrate should be appointed to each seaport to try board-ship offences, and his court should be held at the shipping office. The magistrate should be either a naval officer or an old and experienced shipmaster.

The large number of certificated mariners seeking employment as masters and mates would be reduced as the standard of examinations is raised, and a better rate of wages would in consequence have to be given.

To get the greatest amount of work for the smallest amount of wages is, and always will be, the aim of employers of labour. It is as a check to this that we find trades' unions rising up in every town, and strikes on the increase amongst every labouring community except seamen.

If the shipmasters and mates of each port would only combine together, the growing evil of small wages would no doubt be checked.

In most large and respectable companies a comparatively fair rate of pay is given, and consequently we find the best of our merchant officers flocking to these companies. In sailing vessels and steamers belonging to smaller companies, and single owners, the rate of pay is extremely low. The masters sometimes only getting £10 or £15 per month, surely the owners do not expect to be well and honestly served for such small stipends. Are these owners aware that in many cases they actually pay double and even treble these amounts through the *presents* made to the masters of their vessels by contractors of coal, water, provisions, ship stores, &c., to induce the master to give them the custom of the vessel. The contractor does not intend to lose money by the transaction. The master gains. Who loses?

In conclusion, I would recommend the shipowners to remember that for a good article they must pay well.

ATLANTIC STEAM FERRIES.—We are asked to state that the Liverpool paper referred to in an article in our June number of this year under the above heading on the American line, is the *Liverpool Journal of Commerce*. The writer of the article in our Magazine unintentionally omitted to mention the name of the paper from which he quoted, although referring to it as a Liverpool paper.

ON SEA AND LAND.—RECOLLECTIONS OF A SAILOR.
THE CRUISE OF THE "ARETHUSA," &c., &c.

CHAPTER X.

RETURN ON BOARD THE "ARETHUSA."

IT was past midnight ere we reached the *Arethusa*. Conchie was waiting at the gangway for his superior, who, by way of excuse for keeping his only mate so long out of bed, remarked that he had "fallen in wi' an auld freen', and gane wi' him to his house at Balem." Conchie, with all due humility, bowed his approval, only remarking to me in a whisper, as our skipper descended the companion hatch, that it was "very funny," as these very late hours were unusual with our skipper. Indeed, Conchie was not a man of many words under any circumstances, and as he was very dull of comprehension, he had always the one reply ready to whatever he could not clearly comprehend. No doubt the meeting of an old friend resident in a place, even so far away from home as Lisbon, might not have been an incomprehensible matter to other people, but it was so to Conchie.

Having completed the discharge of our outward cargo in a satisfactory manner, we commenced to load wine, fruit and other Portuguese produce, the larger portion of which consisted of cork wood, for Glasgow.

VISIT TO CINTRA.

The weather continued very hot, and as the work during week days had been severe and constant, our skipper suggested that, by way of a little recreation, we should, on the following Sunday, act upon a suggestion made by Captain Dryden to visit Cintra, he having arranged to accompany us to that favourite resort.

I had read of Cintra and its many beauties, and was greatly delighted with the prospect before me.

The coach engaged to convey us thither was a thorough rattle-trap, and the two animals attached to it, which might be taken for either horses or mules, harnessed with rope traces, and ornamented with bells about their necks, were no better; but the coachman, who had no mercy on the brutes, got over the ground with remarkable speed, though to the cost of our bones.

There was nothing picturesque on the way. Trees were few and far between; the roads were execrable, and the fences, consisting chiefly of *Piteiras*, or cactus plants, had neither a pleasing nor tidy appearance.

Many of the houses, though nearly all inhabited, were going to decay, and very few of the Quintas, or country seats, were in any better condition. Nor were the people whom we saw in the villages any more attractive than their abodes, while the beggars were even more numerous than are to be found in any part of Ireland, displaying their diseases and infirmities in a revolting manner. The country was barren and badly cultivated; wooden ploughs and antiquated harrows were the only agricultural implements we saw from the road, and the carts, waggons, and other vehicles, nearly all of which were drawn by either oxen or mules, were of the most primitive description, presenting a sad contrast to what might have been expected in a country so renowned in history. But its glory had gone. May it not yet be restored by wise legislation and honest officials to what it once was? I think it may. Portugal by nature presents numerous advantages both by sea and land over many other countries, and its people, especially the peasantry, are industrious and frugal.

I was equally disappointed with Cintra itself. It was then a town, (whatever it may be now) half in ruins, with narrow, dirty streets running up the hill side, and squalid-looking people. There were a palace and prison, but both alike stood much in need of repair, and from the grated windows of the latter the prisoners suspended bags or old shoes to receive the charity of the passers by. The approach from Lisbon was lined, it is true, with some tall trees which were refreshing after the parched-up country we had passed through, but they were insignificant compared to those of England. Land and houses had a decaying appearance, and, although the prospect from the Pena, a high hill over the town, on which there then stood an old Moorish castle, was extensive, and I may say grand, though rugged, it in no way equalled the view from Richmond Hill, with which I have sometimes heard it compared. I suspect when Byron wrote his beautiful lines about Cintra he had been enjoying himself with some of the exquisite wines of his exquisite host, Beckford, who had taken up his abode at Monte Serratte, which Byron has made famous. This place, now restored and beautifully decorated by a wealthy London warehouseman, and the Pena, since converted into a country residence by Don Fernando, the late Regent of Portugal, have long been the only places really worthy of inspection in Cintra; but, while the Pena is always open to the public, tourists are excluded, as a rule, from Monte Serratte.

Captain Roughhead was equally disappointed with the place; but I had the advantage over him of enjoying a donkey ride to the Pena, which he certainly did not enjoy; indeed, more than once our skipper was thrown with a thump to the ground on our excursion thither, and had the Balem tailor not double-lined that part of his inexpressibles

on which he fell, there would have been another awkward exposure of his person.

"Hot wark, hot wark, this will ne'er do, Captain Dryden," said our skipper, as he tumbled from his donkey for the third time on our descent from the Pena; "I canna stand it ony langer without some refreshment;" and certainly, the hotel to which we adjourned for that purpose, was, to our fancy, the most enjoyable place in Cintra. It stood on the brink of a hill overlooking the palace, and the principal part of the town, with Monte Serratte and its pretty surroundings in the distance. Over the terrace walk in front, and by the side entrance, vine trees grew in great luxuriance, forming a charming cover from the scorching rays of the sun.

WE MEET WITH ANOTHER SKIPPER.

The house itself, though small, was very clean, and evidently well managed. In the dining-room, which opened upon the terrace, there were a number of guests, and amongst them the master of an American brigantine, then at anchor in the Tagus, to whom Captain Dryden introduced our skipper. He was apparently a superior person of his class, and I soon found that he possessed an amount of intelligence, including a knowledge not merely of business, but of passing political events, much in advance of masters of British vessels of similar dimensions to his own. But such was the case with the masters of all foreign ships, especially those of the United States at the period to which I refer.

Captain Dryden, during a discussion which took place after dinner, had no hesitation in admitting this fact, confirmed by his ten years' residence in Lisbon; and also that in model and equipment, American vessels were undoubtedly far in advance of our own—facts which even Captain Roughhead felt bound to admit, although he could not see that protection had anything whatever to do with the disparity.

"I guess it is the sole cause of it," quietly remarked the master of the American schooner. "We should have no chance of gaining a living with our ships did we not strive to excel you in any way, so as to make up for the advantages you obtain by your navigation laws; while you, on the other hand, knowing that there are numerous trades where you are free from competition, and can always realise a profit, do not care to alter the old forms of your vessels or the mode of working them, as we are obliged to do."

"That is the fact," remarked Captain Dryden; "I see it exemplified almost every day of my life; and the more I see of foreign ships the more am I inclined to think that until we are relieved from all protection and made to depend on ourselves, we never shall be able to compete

with them successfully in any trade where there is a fair field and no favour. I shall take you to-morrow," he continued, addressing our skipper, "to my friend's brigantine; she lays at anchor not far from the *Arethusa*, and there you can see and judge for yourself of the difference between the vessels of the two nations. As to the cause, we must leave those persons to discuss that point who have the power to make a change, but I want you to be thoroughly convinced of a great fact which you now admit with doubts and reluctance."

VISIT TO THE AMERICAN BRIGANTINE.

With that object in view we accepted the American's polite invitation to have breakfast with him on the following morning. His vessel, a fine specimen of what was then known by the name of "Baltimore clippers," though he himself was from Bath, in the State of Maine, lay not more than 100 fathoms from where we were moored, so that Joe and our jolly-boat soon put us alongside.

I think the first glance at the vessel as he stepped on board, convinced our skipper that we had no chance of competing successfully with her on the conditions which Captain Dryden, who had arrived before us, had named in the course of the previous afternoon's conversation. Although about the same register tonnage, she was fully one-third, if not one-half, longer than the *Arethusa*, with very fine ends, and low straight sides. Her deck was flush fore-and-aft, with a house amidships for the seamen and the galley. Her yards were very square; her sails, made of cotton cloth, were light, and though they would not wear so long as sails made of flax, they were more easily handled. All her blocks were much larger than those of the *Arethusa*, and as the sheaves were equally so, and were of the best description, mounted on brass bushes, the ropes of Manilla hemp, ran freely through them. Small winches were attached to the masts, by means of which the topsail-yards and other heavy weights were hoisted, thus lessening the necessity for manual labour. The fore-and-aft mainsail was raised by similar means, and there were leading blocks by the side of the standing rigging through which the tacks, sheets, clew-lines, and traces could be led, and the winches applied when necessary. The windlass and nearly all other appliances were of a superior description to any Captain Roughhead had previously seen, so that she did not require more of a crew than five all told, or one less than the *Arethusa*, though she could stow one-third more cargo, and sailed nearly twice as fast.

"We don't keep any more cats here than can catch mice," remarked the captain, addressing our skipper, who had expressed surprise at the smallness of the crew, and doubts as to the very great speed of the brigantine. "There wouldn't be much chance for us if we did against

you Britishers, who have all the best trades in your own hands ; but I guess if you had to scrimmage for employment as we have to do, and take what's going—in a word, if you were obliged, as Captain Dryden says, to run us a regular clean race, you would soon turn out vessels to match ours ; and why shouldn't you ? You have all the materials," continued the American, "and all the means, and as you're of the same flesh and blood, you have the same energy, but you're not obliged to apply it as we are, *and that's the reason why you don't*. You take matters easy, as we should do under similar circumstances ; had you to compete with others, grass would not grow, as it now does, on the bottoms of your ships ; and your builders, who are quite as clever as ours, would turn out craft that would sail as fast as any Baltimore clipper."

But Captain Roughhead, though a man of great shrewdness, was slow in being convinced that their chief mode of living, embracing the "fat pork, and treacle," and the "Indian corn meal," once so famous in all arguments in favour of our inability to compete with the Americans, had not more to do with their success than the necessity to work for themselves which our Navigation Laws had imposed upon them. Nor did the excellent breakfast with which the American supplied us, and the bill of fare of his crew, tend to weaken his opinions. He had been taught to believe that the "sour crout and black bread" of the Norwegians, Swedes, and Danes, had been the secret of their success, and he thought that similar means had enabled the American shipowners to realize profits out of their ships. "A man convinced against his will, remains of that opinion still." Arguments do not convince him ; against these he sets up long-established opinions, or, rather prejudices, and to these the shipowners of Great Britain rigidly adhered until the repeal of the Navigation Laws left them to depend in all trades entirely upon their own exertions and resources. Then, and then only, were their natural genius and energy brought into full play ; these, combined with the vast undeveloped resources of their country, enabled them to compete, not merely successfully with the vessels of all nations, but to take the lead, and soon afterwards secured for them a position which their forefathers had never attained. We now possess nearly as large an amount of tonnage as all other nations combined, and with it the real maritime supremacy of the ocean.

We have still our troubles, it is true ; and the Plimsoll agitation has been, of late years, no common cause of annoyance to our shipowners ; while Government, in many respects exercised an unnecessary control over their affairs ; but this will, in time, rectify itself. Experience will prove the fallacy of subjecting good and bad men alike to the control of inefficient Board of Trade officials, instead of allowing the former to carry on their business in such a manner as they deem best, and

requiring the latter to furnish proof that the ships they send to sea are not unseaworthy.

SET SAIL FROM LISBON.

The *Arethusa* having completed her cargo for Glasgow, about the same time as the American brigantine had taken on board her loading for New York, both vessels sailed within a few minutes of each other; but in six hours from the time of our final departure from the clearance-house at Balem, the American was nearly out of sight a-head of us—a feat which banished all doubts from our skipper's mind as to her very superior speed.

The weather continued fine for some days, and the winds, though light, were favourable; but the day after we passed the Berlins, from which we took our final departure, it veered round to the north-west, and the feathery flakes of clouds, which spread themselves over the otherwise deep blue sky, betokened a coming gale.

“Conchie,” remarked the skipper to his only mate, “I dinna like the mare's tails flickering about the sky; they put me in min' o' the awfu' storm that wrecked the brig *Betsey*, belonging to Shiel's, on the Long-scar Rocks, near Hartlepool, when every soul on board was droon'd except the skipper, twa men, and mysel'. I was then an apprentice boy, and had it no' been for twa fishermen in their cobbie, wha picked us up whun we were at our last gasp, floating on a bit o' the wreck, we wud a' ha'e gane.”

“It begins to blaw,” continued Captain Roughhead, “jist as it did then; no very strong at first, but coming in whiffs and whirls, as if the gathering gale wanted to try its pow'r before setting out on its cruise o' destruction, tearing up, blawing oure, or sinking so mony o' the things that come in its way and stop its progress. I often wonder whar' the winds cum' frae and whar' they gaw,” continued our skipper in a soliloquising manner. But this was much beyond Conchie's comprehension, who, instead of making any attempt to answer it, relieved himself by attending to the order our skipper had given, to take in the top-gallantsail and gaff-topsail. Happily, however, it was not necessary to further shorten sail, as the wind veering round to the east did not then increase in strength as the skies betokened, and being more favourable, enabled the *Arethusa* to make rapid progress homewards across the Bay of Biscay.

From the time of the Phœnician and Carthaginian navigators down to our own day, sailors have had a fear of crossing the Bay of Biscay, and rejoice when they pass Ushant to the north or clear away Cape Finis-terre to the south. It has ever been a dreaded bay for it has been the scene of many a shipwreck. During westerly gales I have always noticed

that the waves roll into the mouth of that well-known bay in greater volume and with more anger than in any other part of the Atlantic Ocean.

CHAPTER XI.

AN APPROACHING GALE.

Easterly winds are generally accompanied by a clear blue sky, but in this case the flakes which had threatened the coming gale gathered in deep white claying clouds as if they had been plastered to the sky. When we passed Ushant the wind backed round to the north-east and increased in strength, and when we reached the Land's End, which we also sighted, the wind had increased to a gale from the north. Captain Roughhead, now seeing that we could not make a passage up St. George's Channel as he had intended, shaped his course for Cape Clear, but failed to sight it, as the weather had now become thick. He then resolved to take the north passage, making a good stretch to the westward of Ireland, so as to give that ugly part of the coast about Bantry Bay a wide berth.

It was well that he did so, for the wind now backed to the westward, but too late for us to retrace our course and make for St. George's Channel, as originally contemplated. We had, however, obtained a good offing, and had reached far enough north to have the Shannon and that still more excellent harbour, Galway, under our lee in case of accident.

Our skipper, however, had no thought of running for a harbour of refuge under any circumstances short of the loss of his masts; and as the gale, though it continued to increase, had now veered to the southward of west, it was again favourable, and consequently he pursued his course, carrying on every stitch of canvas the *Arethusa* could bear in safety. But at last the gusts became so strong that he considered it prudent to stow the jib, reef the fore-and-aft mainsail and foresail, and double reef the topsail; and under this reduced sail we continued for some time.

THE GALE INCREASES.

The gale, which had been veering about, and had been so long brewing, now commenced to blow from the south-west in thorough earnest, and as there was every appearance of it increasing, Captain Roughhead sent the watch below to get as much rest as they could, and took charge of the helm himself, resolving to remain on deck for the night, and be ready to call all hands when necessary. As the autumnal equinox had passed without its usual accompaniments, he felt convinced, even if he had not

been warned by the threatening aspect of the sky, that a gale was approaching of more than usual severity.

However fond of a glass of grog, our skipper adhered rigidly to his maxim of temperance when duty required him to do so, and consequently he had only one caulker during that long dreary night. The *Arethusa*, though far from a clipper, was an excellent sea boat, and from the nature of her cargo she was in good and even buoyant trim. Nevertheless, the green seas frequently washed over her bows in volumes, and now and again found their way into the cabin as well as the forecabin.

This was the first real gale of wind I had encountered at sea. I had been ordered below with the rest of the watch, but as the *Arethusa* rolled about so much that I was unable to sleep in my athwart-ship berth, I put on my monkey-jacket and oil-skin "south-wester" and returned to the deck.

I cannot say that I was without fear; on the contrary, every plunge of the *Arethusa* made me wish myself located in my father's manse, or even at school; but the grandeur of the gale and of the waves, as they rolled and dashed over the vessel, their crests sparkling in the gloom with phosphorescent lights, rivetted me to the seat I had taken, close to where the skipper stood at the helm.

Perhaps Nature presents no grander or more awful sight—a thunder-storm in the tropics not excepted—than a south-western gale on the Atlantic, when surveyed from the deck of a small vessel; at one moment you are tossed about like a feather on the crest of some stupendous wave, and in another lost in its gulf or hollow. If the moon, as on that occasion, is in its last quarter, the solemnity of the storm is materially increased. You are then enabled to obtain by means of its watery and weird-looking rays, a better sight, however imperfect, of the agitated ocean on which you are tossed, and of the dark clouds overhead growing darker and more gloomy as they gather in a focus to be sent forth with a savage gust against the devoted vessel in which you are, as if she was the sole object of their anger.

That night every succeeding gust seemed to increase in fury, and when it had expended itself, the gathering haze over the comparatively clear space in the sky from which it had rushed only betokened other gusts still more furious.

" They came like rushing hosts of war,
Like loosened cataracts from afar,
Like thunders of the sea."

"Tommy," said the skipper to me, as I sat on the covering board, crouched under the lee of the weather rail, "ye wad be mair comfortable in yier bed on sic' a nicht as this, but as yier there I want you to tak' a message for me."

I thought it was to go and rouse the steward for another glass of grog, but I was mistaken. Our skipper knew when to imbibe, and when to be temperate, and although two glasses could not have done him any harm, exposed as he was to the weather, I must do him the justice to state that the single caulker was the only one he had, so far as I knew, while the gale continued.

"Gang awa' below," he continued, "and tell Conchie ta come on deck, and tell him for me to come up as soon as he can." But I found it no easy matter to rouse our only mate, for like one of Ocean's own sons, the harder it blew the sounder he slept.

"Ca' a' haun's," cried our skipper, as soon as Conchie made his appearance on deck, rubbing his eyes, and attempting to peer to windward through the increasing storm. "Ca' a' haun's, and be quick about it, tae close reef the foresail and mainsail, and tak' in and stow the topsail, and when you gang forward, you and Chips pu' down the fore-staysail; we're gawing ta hae an awfu' teaser."

But before the rest of the crew reached the deck the topsail had split, and its fragments torn into numerous ribbons, were cracking like as many whips in the hands of demons over the heads of the sailors as they reached the deck of the forecabin. In another instant the foresail was blown almost clean away from its bolt ropes; and as the fore-staysail had by this time been hauled down, the *Arethusa* would have suddenly broached to when deprived of her head sails. It might then have gone hard with us, had our skipper, with the assistance of the two men in his watch, not instantly lowered the fore-and-aft mainsail.

The *Arethusa* was now knocking about at a fearful rate in the trough of the sea, without a stitch of canvas upon her. She was in a very critical position, but, as our skipper had with great tact managed to keep spread a small portion of the mainsail she was kept head to wind, and in a position of comparative ease and safety, while the remainder of the crew were engaged securing to the yards, the shivered fragments of the foresail and foretopsail.

Daylight had dawned before the sailors managed to complete their arduous labour. I did my best to lend them a hand; but my mind was full of the most gloomy forebodings; and as I sat on the weather end of the foreyard with my knife assisting Conchie, to cut away, as best I could, the seizings of the remnants of the foresail so that we might save as much of it as we could, I felt that it would be impossible for the *Arethusa* to weather such a storm.

She did, however, although the foreyard arms ever and anon almost touched the crests of the waves as we rolled to and fro. At one moment we seemed to be buried in their hollow, and in another we were tossed high in the air, as if formed of the corkwood which comprised so large a

portion of our cargo ; but with our practised skipper at the helm, she rode over the highest waves in gallant style. And when we managed to set a storm trysail and hove her too, she rose and fell with almost as much ease as the sea-fowl with which we were surrounded, shipping hardly any water on deck. I could not have conceived it possible that good seamanship would have produced such a change in the movements of the vessel.

In this state we lay for three days and nights ; but as the gale showed no signs of abatement, the position of the *Arethusa* had become a matter of very serious consideration to Captain Roughhead. He had not been able to obtain any observation of the sun since he had taken his departure from the Land's End ; and the soundings which, like a prudent master, he frequently attempted to take, though sometimes to no purpose, could not then be depended upon.

It was true that the gale held sufficiently far to the southward of west to prevent us being driven upon the Irish Coast, but it blew with such force that we were evidently drifting much faster to the north than Captain Roughhead wished. Indeed our position had now become one of much uncertainty, and with the Hebrides or Western Islands of Scotland under our lee, it was also one of great danger.

This state of anxiety soon extended to the crew. Sailors, as a rule, seldom lose confidence in their skipper so long as he keeps sober, and is able to obtain an observation of either the sun or stars, but they knew that he had not obtained either, and that he was depending on his "dead reckoning," at all times precarious, and especially so in this case, where we had been hove to for some days on a coast where the currents were irregular and frequently rapid, and they knew also that, with our short deep-sea lead-line, the soundings, such as we had, were not trustworthy.

The nights had now become as dark as pitch, and the days were almost as gloomy. Of the sun we saw nothing—not a ray, except when it rose, casting a fiery glare over the eastern horizon, or set with a still more forbidding aspect to the west.

In this state of uncertainty we continued for more than a week. Captain Roughhead knew, and so did everyone on board, that we must be drifting towards the Hebrides. It was a time of great anxiety. Every eye was now on the look out for land, and one of the crew was frequently sent aloft to see if any traces of it could be discovered. At last our suspense was relieved, but only to increase our anxiety, and render our perilous position more certain. The first light of the morning's sun revealed to the man on the look-out aloft a terrible sight. His shout of "Land under our lee" made every heart quake, and when he added that he thought he saw breakers between us and the land, everyone felt

that we were so dangerously close to it that there was no hope for the *Arethusa*.

Although the land was obscured almost immediately afterwards by the dense black clouds which hung over the sun as it rose above the horizon, and had not been seen by anyone else, there was no reason to doubt that the glare from its rays had too clearly revealed to the man aloft its existence, and our too close proximity to a rugged and dangerous coast. Captain Roughhead now felt certain that we had drifted amongst the numerous islands which line the western coast of Scotland, but where he could not then even conjecture.

Under ordinary circumstances there is no more welcome sight than the land after you have been long at sea. The eye wearies for a change from the constant view of sky, clouds and ocean, and we picture to ourselves an early relief from these ever the same, although ever changing objects, and from the every day routine of a ship where you may have been cooped up for many months. The sight of land, for which we have shaped our course, and desire to make, is then welcome, even if it be a barren rock.

I have frequently experienced the exquisite delight which its first sight affords when the land before us is the home of our fathers, and we see in the distance the richly-clad soil where, perhaps, we may have spent many pleasant days. It would be impossible to describe the ecstasy that such a sight affords. How very bright and sunny are then our hopes and anticipations! and if we have been long absent from friends we love, with what delight we picture to ourselves another social meeting.

But how different were the feelings of everyone on board of the *Arethusa* that gloomy morning. In their case the sight of land betokened, under the circumstances, almost certain destruction, while the ignorance of our actual position increased, if that were possible, our despair. Captain Roughhead, however, maintained his calmness; if he had still his doubts, and if he saw our imminent danger, which he must have done, he displayed no token of fear, but continued in the same quiet, watchful mood that he had been throughout. Indeed, the near approach to great danger, if not to death, seemed to have strengthened his iron nerves.

Directing Conchie to take his place at the helm, he drew from underneath the companion hatch his telescope, with which he walked forward, and slowly but carefully scanned the eastern horizon, where the rays of the morning sun had for a minute revealed the sight of land. Nothing, however, was now to be seen or heard, except the violently agitated ocean, and numbers of sea birds, screeching as they skimmed over the surface, following the curls of the waves as if they knew that on their crest they would most likely find the food of which they were in search.

But Captain Roughhead had not taken up his station by the foremast more than half-an-hour when he came aft again, took hold of the helm, and half whispered to Conchie to set sail, while he himself stood ready to bring the *Arethusa's* head as close as she would lie to the wind. He had seen land both to the northward and eastward, the former almost dead under our lee; and, after a careful examination of the chart, he was convinced that we had drifted amongst the Hebrides, somewhere between Barra and the small islands to the southward of it.

Not a moment was now to be lost; and though Conchie looked with astonishment when he received orders to set more sail in such a tremendous gale, he obeyed them with alacrity, for by this time Conchie himself had caught a glimpse of the land. Happily, we had bent our new top-sail and foresail after the others had been blown away, and had prepared the storm fore-and-aft mainsail ready for setting.

"Be quick, my guid fellows," cried our skipper to his men. "Mak' haste, my lads, mak' haste;" but the sailors did not require prompting any more than Conchie, for all of them had now seen our dangerous position. "Up wi' the fore-staysail, and down wi' the fore-tack. Clap on a' haun's at the foresheet, then loose the topsail"—(both sails had been close-reefed when they were bent)—"rouse home the sheets, and hoist away topsail-yard. Now, then, out wi' the storm-trysail—brace up, and haul taut the weather-braces."

Although these orders were given with unusual rapidity, the work was carried out almost as fast as the words fell from our skipper. Conchie displayed extraordinary activity, and—where his long but muscular arms were brought into full play—he could get through with more work than any two ordinary men.

Immediately, however, the sails were set, and the skipper—who remained at the helm—had brought the *Arethusa* close up to the wind, she staggered like some drunken man, and careened over in so frightful a manner, that I felt she must capsize, or that the gale, in its fury, would tear the masts, with her sails, clean out of her; but, on the next instant, she bravely rose to the waves, as if defying the storm. Like some thing of life, she waged war with the elements, ever and anon yielding to their power, but as frequently rising again in defiance. It was a grand but terrible sight.

The gale was now blowing nearly due south, and, though staggering fearfully under the pressure of the sails, the *Arethusa* made more head-way than could, under such circumstances, have been expected from her. Nevertheless, she was at the same time slowly, but surely, drifting towards the dreaded shore; and, as we approached, we could see the waves breaking with awful fury against the base of the rugged cliffs, as if attempting to surmount them.

Thus we continued on our course for between two and three hours—they seemed like a day—the *Arethusa* plunging and staggering as if she would shake herself into fragments, but still maintaining her position so well to the westward, as to induce the hope that she would clear the land immediately under her lee. But our only chance of doing so rested with the masts, ropes, and sails holding in their places.

Our skipper saw this, and calling Conchie to him he said, “Ye mun double tack the foresail, and put stoppers on a’ the sheets, and be ready for the warst. Then rouse up the chain cables and ha’e the anchors clear. It’s life or death for us noo, Conchie, and there mun be nae flinching; we mun weather awa’ that headland which you see there on the lee bow. If we can manage it wie’l fin’ shelder o’ some sort at the back o’ South Uist or down about Skye.”

Captain Roughhead had more than once been trading amongst these islands on his coasting voyages, and when he had obtained a clear sight of the land he knew perfectly well where he was. Nor were Conchie and most of the crew strangers to that rugged coast. Indeed, Conchie when a lad, had been once cast on shore in a small coaster on the outer Hebrides, and though he no doubt considered it very funny that he was likely to be cast on shore a second time, he kept his thoughts to himself and performed wonders at his duty. He was a perfect Hercules when an emergency required him to do his utmost.

Nor was Conchie less stout-hearted. Simple-minded and silly-looking fellow as he was, there were few braver men, and with all he was one of the gentlest and kindest of mortals. Always prepared for death, he was ready to face it in any form; nor did the thought that if his life was spared in shipwreck there would be other dangers still to encounter on shore disturb his usual equanimity. In all my experience I never met two better sailors, nor, though void of book-learning, two finer specimens of blunt, honest, cool, determined men than Captain Roughhead, of the *Arethusa*, and his “only mate.”

CHAPTER XII.

THE WRECK OF THE “ARETHUSA.”

Our skipper as well as Conchie knew that the “wreckers” belonging to the Hebrides, like too many of their calling at that time on the west coasts of Scotland and Ireland, were lawless fellows, and had his fears of what might follow the stranding of the *Arethusa*. Ships or boats or other waifs of the ocean thrown on these shores, were considered lawful prizes by all these wreckers, and as most of them were men of a desperate as well as a daring character, they were not to be trusted when

their "rights" were disputed. If the storm had left no living soul to claim the stranded ship, anything in and about her became not merely an easy prey, but in their opinion was a windfall which this sea, not having engulfed, left for their use; nor did they doubt their right to claim as their own whatever was washed on their sterile shores even in cases where the tempest had spared the lives of the crew. Sometimes life itself was sacrificed to secure their object—not that they would as a rule, though there are exceptions on record, massacre the crew in cold blood for the sake of plunder, but, if likely to answer their purpose, they were not over-zealous in attempting to save any of the ship's company struggling for life amidst the wreck of their vessel.

Conchie knowing all this as well as our skipper, redoubled his exertions to keep the *Arethusa* beyond the grasp of the Hebrides wreckers.

The inhabitants of Barra—the larger portion of whom were Roman Catholics, not that they were more ignorant of the rights of property than the small Presbyterian portion of the community—had with eager eyes seen the *Arethusa* struggling with the storm quite as soon as we had seen the island. They had watched our movements from every lofty cliff with glowing thoughts, of another gift from the ocean which the gale in its anger was about to cast on shore, and having seen that the *Arethusa* must inevitably be stranded, they had now gathered in crowds on the headland, which they felt it would be impossible for her to weather.

At all times and in all places the prospect of a ship being stranded and becoming a wreck has the most thrilling effect on the witnesses on shore of such an exciting and too frequently terrible catastrophe. Men, women, and children—it does not matter what is their age, rank, or tongue—hasten to the spot where the doomed vessel is likely to strike. The storm and the ill-fated craft, bravely but vainly contesting against the raging elements, are grand, however awful, objects for contemplation, and they are in themselves a thrilling contest between man's skill, his science, and his genius, and nature in one of its most terrific aspects. The winds and the waves combining to destroy one of the noblest triumphs of art might well in itself attract crowds of persons to witness the struggle, but with a class of persons who, should the elements prove victorious, consider wrecks as a special dispensation of a wise Providence, the interest is intense.

Towns and hamlets are deserted on such occasions, and even the husbandmen from the valleys, and the shepherds from the hill sides, leave their occupations and their flocks to be witnesses of the warfare. In more civilised portions of the United Kingdom than the Hebrides, we rush to the spot in the hope of saving life, and, with that object, frequently display the most heroic exertions; the preservation of life of others being one of the best and noblest feelings, so strong that it often

overcomes the caution or prudence necessary for the protection of our own lives.

Far be it from me to say that an anxiety to save life, combined with that love for sight-seeing, especially sights of an exciting character—inherent to our nature—did not actuate very many of those persons who had collected on the headland of Barra, where the *Arethusa* was likely to be stranded; but there was evidently a goodly number who had gone there in hope of plunder, or—to state the case in its mildest form—to pick up whatever the storm cast upon their wild and rugged shores.

As we drew towards the land, while the cliffs were in some parts covered by groups of people, we saw in two of the sandy nooks which intervened, a number of men, and one or two large fishing-boats, ready to be launched, their crews waving flags, as if they wished us to run for the beach, under, I believe, the honest conviction that the *Arethusa* could not weather the headland.

But Captain Roughhead paid no attention to their signals. His thoughts were too much directed to the one object he had in view, the safety of the vessel, which he felt could only be accomplished by getting round that bluff promontory. The large gathering of people must, however, have created in his mind a fear of their hostile—rather than their friendly—intentions, for he whispered to Conchie:—

“Gang awa’, and load the blunderbuss, we may need it; for should we strike and hau’d th’gither, some o’ they chieils—they’re warse than the warst o’ Helen’men—may fin’ their way alangside; and though they nicht nae’ attempt to tak’ our lives in broad daylight, they’re no to be trusted when they see onything they wu’d like to ha’e. They’re a pan’cky, sleeky, thieving lot—I ken them weel.” And as Conchie knew them likewise, and was somewhat familiar with their failings, he promptly obeyed our skipper’s orders.

The *Arethusa*, however, stood so well up to her canvas, that she bade fair to disappoint the wreckers; but it was an hour of the most fearful suspense of any we had experienced during the gale. The people on shore could now be distinctly seen; indeed, in the momentary lulls, we thought we heard their combined shouts, for they were a thousand times more excited than any one on board of the apparently doomed brigantine. Admiration for the manner in which she seemed to defy the elements had, no doubt, something to do with their shouts or cheers, for, with all their failings and thieving propensities, they, like all other seafaring people, revelled in such a struggle as was now going on, and which, in a few minutes, must be decided either one way or another. In less time than I take to tell the tale, the *Arethusa* would either have rounded the dreaded headland, and been away in comparative safety, out of their sight, or

she would, as every one on shore must have thought, been dashed to pieces on the cliff; nor could our crew entertain any other opinion.

Neither of these conjectures, however, proved correct; the *Arethusa* would have weathered away the headland had everything held fast; but the fore-sheet, though double lashed, gave way at the most critical moment, with a crack so loud that it was distinctly heard by everyone on board, even amidst the howling storm, and away with it went the fore-sail, rent into shivers.

It seemed to be all over with us, and so it would have been, for there was nothing more to prevent us from drifting on to the base of the cliff we had been endeavouring to weather, when every soul on board must have perished, had Captain Roughhead, with great nerve and presence of mind, not put the helm hard up, squared the fore-topsail, and run the *Arethusa* for the largest and apparently the clearest of the two sandy nooks or beaches, from which the people on shore had waved their signal flags.

It was a bold and successful stroke of seamanship, for although the *Arethusa* afterwards became a total wreck, all our lives were saved, and most of our clothing.

WE LAND SAFELY ON BARRA ISLAND.

Happily we had taken the beach at high water, and had half-rounded too, as we struck under the partial shelter of a huge boulder, which broke the rollers as they spent themselves on the beach, and saved us from what otherwise might have been instant destruction.

But we soon discovered that, though our lives were safe, our ship must become a wreck. In running for the beach, the *Arethusa* had bumped over a shelf of sunken rocks, which had played fearful havoc with her bottom, driving holes in it so large that had she not in a few minutes afterwards been beached on the sandy shore she must at once have sunk, or been broken up on the reef over which the waves had luckily carried her.

It was some time ere the people on shore could reach us; but as the tide receded, a dozen rough-looking fellows managed, at half tide, to get alongside in their lugger.

Captain Roughhead did not seem to relish their looks, and having great doubts as to their intentions, he brought the blunderbuss from under cover and fresh primed it ready for action, if needs be; while Conchie immediately afterwards made his re-appearance on deck with a couple of large horse-pistols stuck into his waist-belt, and an old cutlass slung by his side, which though somewhat rusty, would have been effective enough in his powerful grasp.

"We dinna want ony help frae ye," said our skipper to the men in

the boat when they had hauled her alongside; "I ken a' about this coast, and at low water we can a' get on shore wi' the things we want without your help. Nae wreckers wull be allowed to come on board this vessel while I'm in command o' her." But four of them had in the meantime scrambled over the side.

What their intentions were it is not easy to conjecture, but as they apparently had no arms of any sort about them, I must, in charity, suppose that they really meant to render us any assistance we might require, or, at most, to help themselves to whatever could no longer be of any use to us.

If, however, they intended plunder—that is, open defiant plunder—the resolute looks of our skipper, with the blunderbuss by his side, and the appearance of Conchie, armed as he was, must at once have put any open marauding proclivities out of their heads, at least, for the time being.

"Weel, weel, Captain; we jest thocht," remarked their leader, "that after sic a nicht as ye mun hae hed, ye and the crew wud want rest, and that me and my chieles here might earn an honest penny or twa by lending a haun' to get as muckle o' the cargo out o' the ship at low water as we could, for she'll ne'er get aff the shore again."

They knew that the *Arethusa* had struck upon the sunken reef, and must become a total wreck, and that, even if repairable, there were no means of effecting the repairs on the island, or at any place in the immediate vicinity.

Captain Roughhead, seeing that they for the present meant no harm, and as their proposal was fair and honest enough, he engaged them to lend a hand to put on shore what could be saved in the course of that tide, including our clothing, nautical instruments, and the most valuable portion of the outfit; these, with a considerable portion of the lighter and more valuable description of the cargo, we were enabled, with their assistance, to land safely on the beach that day before sunset.

Nevertheless, our skipper still entertained doubts of the honest intentions, not merely of the men who had found their way on board, but of a great many of the people who hung about the shore, for they were an idle, loafing-looking lot, and as the goods were landed, he placed Conchie with the cutlass and pistols by his side, and "chips," the carpenter, with the blunderbuss under his arm, to watch over them.

At that time there was no receiver of wrecks stationed in the Hebrides, at least not on the island of Barra, and the parish priest was supposed to perform that difficult and responsible duty. Under the conviction that a person in his position would perform his duty faithfully, Captain Roughhead, after he had dispatched to the nearest village whatever articles might have been conveniently carried away, left everything else

for the night in charge of the priest and one of our crew, proceeding with Conchie and myself and the remainder of our men to the village, for the rest and refreshment we so much required.

But the priest, and those of his people whom he had appointed to assist the man we had left to look after the remainder of the goods which had been landed, managed to induce him to drink more of their peat still whisky than he ought to have done, and wearied out by the work of the previous day, and overcome by the enticing potation, he fell into so sound a sleep, that when he awakened at daylight he found that all the goods had disappeared, except two or three bales of corkwood, on which he had lain down to rest.

CAPTAIN ROUGHHEAD LOSES HIS TEMPER.

Captain Roughhead was in a towering passion, as well he might be, not so much with Joe who had been left in charge as with the priest, when he learned that the goods had been taken away. But there was no other authority in the island with whom he could lodge his complaints, as the priest himself was the only person who exercised the functions of a magistrate; and considering the opinions he, when remonstrated with, did not hesitate to express about the "rights of property," and the "goodness of Providence to poor men who had few means of gaining a living," it was not very probable that he would prove an over fastidious protector of whatever property the ocean might land on the shores of his parish.

"How can I help it, Captain," pleaded the priest, seeing that his other mode of argument only made Captain Roughhead more angry, "we have no police, and wid all my teachings about honesty being the best policy, and how their Father in Heaven, of whom I'm so poor and weak a representative, will punish the wicked, they help themselves, in spite of all I can say to them, to everything that comes from the sea, and is within their reach. I tell them that its thaving; I preach to them, and I pray wid them, but they won't b'lave me. More's the pity for their souls; but poor devils, and I am sorry to call any of my flock by that name, they have been taught by their fathers and mothers to belave that as God rules the sea, everything that is cast on their poverty-stricken shores, when they are often starving, is sent by an act of Providence for their use."

STATE OF THE ISLAND.

We had already received some very convincing proofs that there was some reason for the priest's arguments on their behalf; I had never seen, and I have never since seen, such a state of destitution as prevailed in the village, or "clachan," where we had taken up our abode.

The village itself, though I believe the best then in the island, was of

the most wretched description. Its inhabitants lived—I should rather say, half existed—in miserable huts, without windows, with a hole for an entrance, and another in the roof to allow the smoke from their peat fires to escape. In one space, I cannot call it a room or an apartment, they were huddled together, father, mother, and sons and daughters, of all ages; and contiguous to this space, and without any division worthy of the name, their cattle, and pigs, and animals of various kind, had a covering in the winter season. Indeed, the very manure was gathered together to preserve it from the rain and snow, and housed in their wretched abodes, until it was required to spread in the spring on their barren soil. As to the soil itself, it produced little beyond a few patches of oats where it had been possible to cultivate them, although in sheltered sandy spots, potatoes could be raised, but nothing else, when the season proved favourable, and the land, such as it was, had been sufficiently manured. Everything else in the way of green crops were unknown. Where the rocks were not covered with sand drifted from the ocean, a few clumps of rank grass might be traced spreading itself from the neighbouring swamp over their rugged surface. Trees were unknown; stunted, leafless brushwood supplied their place, and where oaks of sturdy growth (but these were few and very far between) had resisted the frequent storms which swept over the island, they had been shorn of their branches, and were only dwarfish, mangled wrecks of what they should have been.

Here and there might be seen shallow lakes, or sluggish streams, with stagnant ponds and ditches reflecting the dismal blackness of the peat, so that they resembled pools or puddles of ink. The valleys were mostly bogs, and the hill sides were covered with granite boulders, between which a few cattle, as stunted as the trees, and some starved-looking sheep found precarious pasturage. Had it not been the case that these animals managed to exist, and that a larger proportion of them than one could have supposed, even continued to thrive on the "bent," when assisted by a better description of grass which covered the tops of the highlands in spring time, the inhabitants would have had no means of earning a livelihood, except by fishing, when the weather permitted; but somehow or other, they did not prosecute that calling with a vigour necessary to command success. Nor did they seem to care about following other pursuits which might have been made lucrative to people in their poverty-stricken position, such as the capture of seals, to be found at times in abundance amongst the rocks and bays, by which the islands of the Hebrides were intersected and surrounded. Rabbits were plentiful; there were also a few moor fowl, woodcocks, and wild ducks, but the inhabitants had no fowling pieces, nor the means of obtaining them with the necessary ammunition, and if they had they were so

indolently inclined that I question if they would have made a profitable use of them.

Their food, therefore, consisted almost entirely of oatmeal converted into porridge or cakes, potatoes, salt fish, milk, and shell fish of various kinds, gathered from the beach. Now and again they had a dish or joint of "boldie," or "brachish," the former being the mutton of sheep which had gone mad with maggots on the brain or some other cause, and being unsaleable in the neighbouring markets, were penned up and fattened for the use of their owner's family and friends, or more likely slaughtered and sold to some passing vessel in urgent need of fresh provisions. But the brachish was even a more revolting description of animal food. It consisted of the carcasses of dead sheep which had sometimes lain unnoticed on the hill sides, or more frequently in the valleys and pools of stagnant water, for three weeks or a month. The time, however, the carcase had thus lain was not a matter of much consideration to the Hebridians. So long as the meat was not actually putrid, and could be dried and smoked over their peat fires, and thus preserved for winter use, and so long as the skins of the animals were sufficiently sound to be converted into floats for their fishing nets, a dead sheep was anything but a dead loss to them.

Nor were the inhabitants themselves in any way better provided with clothing than with food. Shoes, I might say, were almost unknown, and the stockings worn by the women were frequently footless, in many cases from choice. Their attire in other respects consisted of all sorts of odd adaptations. Originally it may have been of the usual home-spun coarse woollen stuff common to the district, but even that was so thoroughly patched with odd pieces of different coloured cloths, sometimes with bits of silk and other finery, that it would have been difficult to conjecture the original materials. No doubt most of these patches of superior quality and manufacture consisted of waifs from the ocean; but, as most of their clothing was faded, worn, and very dirty, the different qualities and variegated colours were not glaringly perceptible; altogether the Hebridian women were as draggled and deplorable in their attire as the huts in which they lived were poor and wretched.

Nevertheless the women of Barra were stalwart, and even good-looking, and on the whole, fine specimens of the female sex. Most of the hard, and indeed all the menial, work was performed by them, the male sex preferring to fish, when the weather permitted, or to plant and dig the potatoes. Nor were the men more energetic in their more congenial pursuits; they appeared to relish idling and gossiping about their villages a great deal more, and pilfering from their neighbours when they had an opportunity, but, above all, their favourite occupation was to lounge about and watch a chance for the plunder of some unfortunate vessel which had

been cast upon their inhospitable shores. They may have considered themselves to be of the better order of our race, as most men do, but the men of Barra were much inferior to the women.

Most of these lounging, loafing fellows had a good haul from the wreck of the *Arethusa*, in spite of all the preachings and warnings of their priest; but, from what transpired, I suspect he not merely winked at their misdeeds, but helped himself, by private arrangement, to the lion's share.

As the gale continued to rage with unabated fury for two days after the *Arethusa* had been driven on shore, and as her hull had sustained very serious damage in bumping over the reef, the waves of the following flood tide had an easy work to perform in shaking the masts over her side, while the ensuing tide, an unusually high one, as easily completed her destruction.

Cargo and wreck were now alike driven on shore, and in spite of our skipper's exertions to preserve it, the cargo, somehow or other, was transferred in the course of the night, and even in broad daylight, to places difficult of discovery, and still more of recovery. Nor could he save those portions of the wreck of the vessel herself which could be conveniently removed. They were all, in the opinion of the wreckers, waifs of the ocean, and as such were the legitimate property of anyone who had strength to carry them away.

Although many of the casks of wine were stove in, it is surprising the number that were washed on shore in a sound state. Some of these were breached and their contents drunk on the spot, or carried away in buckets, cans, and other utensils; but in numerous instances the pipes were bodily removed and buried in some convenient spot until their contents could be transferred either to the cellars of the priest or the huts of the peasantry.

Every attempt to save any portion of the cargo proved, under the circumstances, altogether in vain; wine, dried fruit, and even the corkwood, disappeared in the course of the first week after they had been cast on shore, and considering that nearly the whole adults, out of a population somewhere about 2,000 inhabitants, belonging to the island were gathered around the spot ready to carry away, by night or day, whatever they could lay their hands upon, it is surprising that any portion of either the cargo or the removable portions of the wreck should have remained so long on the beach.

In the winter season there are no regular means of communication between Barra and the mainland, or between it and the other islands, and, at that time, months frequently elapsed without any intercourse whatever, so that Captain Roughhead, however anxious to save the cargo of his vessel for "the benefit of whom it might concern," was

unable to communicate with the laird, or obtain assistance from the underwriters, or other legalised authorities.

To have attempted with his small crew, even when backed by his scattering blunderbuss and Conehie's pistols and cutlass, to protect any portions of the wreck beyond what he had secured for his own use and that of his crew, would have been futile. The Barra men were far too numerous for him to overcome, unsupported as he was by any officials or other trustworthy persons. As the wreckers carried on their operations by stealth, and produced so many arguments in favour of their "rights to all property cast on shore," any bold attempt to prevent plunder—everybody being a wrecker in Barra—might have placed his own life and the lives of his crew in jeopardy. Indeed, he had no course left, except to protest against their conduct, which he did in a document written by myself to his dictation; I recollect it was a curious composition full of strong words, but although the priest, the only "authority" in the island, to whom it was addressed, read it with much gravity, he relieved his conscience by expressing his regret that he was powerless, and could only leave matters to take their *usual course*.

In justice to the inhabitants of Barra it must, however, be added that we were kindly treated, and that every article in the shape of clothes and such like, including the provisions we had saved, were left in our undisputed possession. It was lucky for us that we had saved some provisions, or we might otherwise have been obliged to sustain existence as best we could on a scanty allowance of oatmeal and potatoes, "boldie" and "brachish."

More than a month elapsed from the time of our shipwreck ere the weather permitted us to leave Barra, and then we found a passage in a large fishing-boat to the mainland of Scotland.

Thus ended my cruise in the *Arethusa*, and my first, though far from my last, voyage to sea.

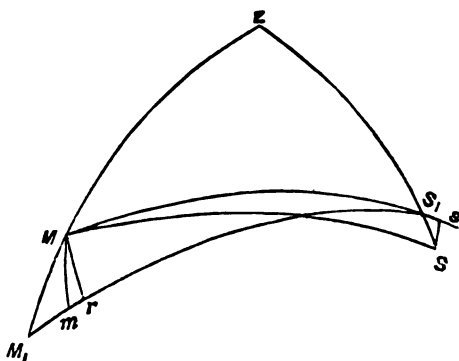
RUSSIAN NAVY.—In an estimate of first-class iron-clads in the *Revue Coloniale et Maritime*, putting the *Inflexible* at 100, the *Dreadnought* is rated at 72, the *Peter the Great* (the most formidable vessel in the Russian navy) at 71, and the *Thunderer* and *Devastation* at 65 and 68 respectively. But the relative power of the *Peter the Great* is much over estimated by these figures; and if half the stories which are told of the Russian dockyards are true, her construction is defective in many important particulars. She is now ordered round to the Mediterranean, and it is not altogether impossible that in the course of the next year or two our own dockyard officials may have an opportunity of overhauling her completely and remedying any defects that may be found to exist.

RAPER'S NAVIGATION.—VII.

LUNARS.—CLEARING THE DISTANCE.

842.

APPROXIMATE METHOD.



Let Z be the Zenith, M and S the True positions of the Moon and Sun (or Star), M_1 and S_1 their Apparent positions, then $M_1 M$ and $S_1 S$ are the Corrections of Altitude, $M_1 S_1$ is the Apparent Distance and MS the True Distance. Let MS_1s be a great circle through M and S_1 ; describe the arc Mm making $S_1m = MS_1$ and the arc Ss making $Ms = MS$.

$$MS_1 = m S_1 = M_1 S_1 - M_1 m$$

$$MS = Ms = M S_1 + S_1 s$$

$$= M_1 S_1 - M_1 m + S_1 s$$

$M_1 m$ is the Moon's Correction of Distance and $S_1 s$ the Sun's (or Star's).

Let A be the Apparent Altitude of the Moon, a the Apparent Altitude of the Sun (or Star), D the True Distance, d the Apparent Distance, C the Moon's Correction of Altitude, and c the Sun's (or Star's) Correction of Altitude.

In the Spherical triangle $Z M_1 S_1$

$$\begin{aligned} \cos M_1 &= \frac{\cos Z S_1 - \cos Z M_1 \cdot \cos M_1 S_1}{\sin Z M_1 \cdot \sin M_1 S_1} \\ &= \cos Z S_1 \cdot \operatorname{cosec} Z M_1 \cdot \operatorname{cosec} M_1 S_1 - \cot Z M_1 \cdot \cot M_1 S_1 \\ &= \frac{100 \cdot \sin a \cdot \sec A \cdot \sec(90^\circ - d) - 100 \cdot \tan A \cdot \tan(90^\circ - d)}{100} \\ &= \frac{M \cdot \sin a + N}{100} \quad \left(\begin{array}{l} + \text{ according as } d \text{ is less or more} \\ \text{than } 90^\circ \end{array} \right) \\ &= \frac{\text{Dep} + N}{100} \end{aligned}$$

The triangle $M M_1 m$ being very small may be considered a plane triangle; then if the angle m is a right angle,

$$M_1 m = M M_1 \cdot \cos M_1 = C \cdot \cos M_1$$

Hence the rule for the Moon's Correction of Distance.—With the Moon's Apparent Altitude (A) and the Complement of the Apparent Distance

$(90^\circ - d)$ take out from Table 5, M and N. $\{100 \text{ Sec } A \cdot \text{Sec } (90^\circ - d)\}$ and $\{100 \text{ Tan } A \cdot \text{Tan } (90^\circ - d)\}$.

With the Sun's (or Star's) Apparent Altitude (a) as Course and M as Distance, find the Dep. ($M \cdot \sin a$).

When the Distance is less than 90° , take the difference of this Dep and N (because all the quantities are positive) marking the Dep according as it is greater or less than N.

When the Distance is greater than 90° , take the sum of the Dep and N (because $\cot d$ is negative).

With the Distance 100 and the said difference or sum as D Lat, find the Course $\left(\cos M_1 = \frac{\text{Dep} + N}{100} \right)$.

With this Course (M_1) and the Moon's Correction of Altitude (C) as Distance, find the D Lat ($M_1 m = C \cdot \cos M_1$), this is the Moon's Correction of Distance.

For the Sun's (or Star's) Correction of Distance, in the above rules interchange Sun (or Star) and Moon.

When the Distance is less than 90° and Dep is less than N, Dep - N is negative, consequently $\cos M_1$ is negative and $-M_1 m$ is positive; hence *add* the Moon's Correction of Distance. If the Dep is greater than N, Dep - N is positive, consequently $\cos M_1$ is positive and $-M_1 m$ is negative; hence *subtract* the Moon's Correction of Distance.

These rules are reversed for the Sun's (or Star's) Correction of Distance, because the True positions are below the Apparent positions.

When the Distance is greater than 90° , Dep + N is positive, consequently $\cos M_1$ is positive and $-M_1 m$ is negative; hence *subtract* the Moon's Correction of Distance, and *add* the Sun's (or Star's).

In the foregoing investigation M m has been supposed perpendicular to $M_1 S_1$, the Moon's 2nd Correction of Distance is the amount of error on this supposition. Let M r be perpendicular to $M_1 S_1$, then m r is the 2nd Correction.—Let this Correction be C_2 and the 1st Correction be C_1 .

$$M S_1 = m S_1 = r S_1 + m r = d + C_2 \text{ nearly.}$$

$$\cos M S_1 = \cos (d + C_2) = \cos d \cdot \cos C_2 - \sin d \cdot \sin C_2$$

In the right-angled spherical triangle, $S_1 M r$

$$\cos M S_1 = \cos r S_1 \cdot \cos M r = \cos d \cdot \cos M r \text{ nearly}$$

$$\text{Therefore } \cos d \cdot \cos M r = \cos d \cdot \cos C_2 - \sin d \cdot \sin C_2$$

$$\cos M r = \cos C_2 - \tan d \cdot \sin C_2$$

$$1 - 2 \sin^2 \frac{1}{2} M r = \cos C_2 - \tan d \cdot \sin C_2$$

$$2 \sin^2 \frac{1}{2} M r = \tan d \cdot \sin C_2 \quad (\cos C_2 = 1 \text{ nly})$$

$$\sin C_2 = 2 \cot d \cdot \sin^2 \frac{1}{2} M r$$

$$C_2 \cdot \sin 1' = 2 \cot d \cdot \frac{1}{2} (M r)^2 \cdot \sin^2 1'$$

$$C_2 = \frac{1}{2} \cot d \cdot (M r)^2 \cdot \sin 1'$$

$$= \frac{1}{2} \cot d \{ (M_1 M)^2 - (M_1 r)^2 \} \cdot \sin 1'$$

$$C_2 \text{ in seconds} = \frac{1}{2} \cot d \{C^2 - C_1^2\} \cdot 60 \sin 1' \\ = \frac{1}{2} \cot d \cdot C^2 \cdot 60 \sin 1' - \frac{1}{2} \cot d \cdot C_1^2 \cdot 60 \sin 1'$$

Hence the rule for the Moon's 2nd Correction of Distance.—Enter Table 56 with the Apparent Distance (d) and the Moon's Correction of Altitude (C), and take out the seconds ($\frac{1}{2} \cot d \cdot C^2 \cdot 60 \sin 1'$). Enter again with the Correction of Distance (C_1) and take out the seconds ($\frac{1}{2} \cot d \cdot C_1^2 \cdot 60 \sin 1'$). The difference of these two quantities is the 2nd Correction.

When the Distance is less than 90° , $\cot d$ is positive, hence the 2nd Correction of Distance is to be *added*.

When the Distance is more than 90° , $\cot d$ is negative, hence the 2nd Correction of Distance is to be *subtracted*.

TABLE 56.

It has been shown that

$$C_2 \text{ in seconds} = \frac{1}{2} \cot d \cdot C^2 \cdot 60 \sin 1' - \frac{1}{2} \cot d \cdot C_1^2 \cdot 60 \sin 1'$$

$$\text{But } 60 \sin 1' = .01745 = \frac{7}{400} \text{ very nearly}$$

$$\text{And } \frac{1}{4} \frac{1}{\delta^2 \sigma} = \frac{1}{\delta^2 \sigma} + \frac{1}{\sigma^2 \delta} \text{ of } \frac{1}{\delta^2 \sigma}$$

$$\text{Therefore } C_2 = \frac{1}{2} \left\{ \frac{1}{\delta^2 \sigma} + \frac{1}{\sigma^2 \delta} \text{ of } \frac{1}{\delta^2 \sigma} \right\} \cdot \cot d \cdot \{C^2 - C_1^2\}$$

Hence the rule for computing a term.—Find the square of the number of minutes (C^2 or C_1^2) and divide it by 60; for greater accuracy increase this by $\frac{1}{\sigma^2 \delta}$ of itself ($\frac{1}{\delta^2 \sigma} + \frac{1}{\sigma^2 \delta}$ of $\frac{1}{\delta^2 \sigma}$). With the Apparent Distance (d) as Course and the said square $\left\{ (C^2 \text{ or } C_1^2) \left(\frac{1}{\delta^2 \sigma} + \frac{1}{\sigma^2 \delta} \text{ of } \frac{1}{\delta^2 \sigma} \right) \right\}$ as Dep, find the D Lat ($D \text{ Lat} = \text{Dep} \cdot \cot Co$); half this is the term required.

844. Notation as before. Also let C_1 be the 1st Correction, C_2 the 2nd, and C_3 the 3rd.

In the spherical triangle $Z M_1 S_1$

$$\begin{aligned} \sin^2 \frac{1}{2} M_1 &= \sin \frac{1}{2} (Z M_1 + Z S_1 - M_1 S_1) \cdot \sin \frac{1}{2} (Z S_1 + M_1 S_1 - Z M_1) \cdot \\ &\quad \text{Cosec } Z M_1 \cdot \text{Cosec } M_1 S_1 \\ &= \sin \frac{1}{2} (90^\circ - A + 90^\circ - a - d) \cdot \sin \frac{1}{2} (90^\circ - a + d - 90^\circ + A) \cdot \\ &\quad \text{Cosec } (90^\circ - A) \cdot \text{Cosec } d \\ &= \sin \{90^\circ - \frac{1}{2} (A + a + d)\} \cdot \sin \{\frac{1}{2} (A + a + d) - a\} \cdot \text{Sec } A \cdot \\ &\quad \text{Cosec } d \\ &= \cos \{\frac{1}{2} (A + a + d)\} \cdot \sin \{\frac{1}{2} (A + a + d) - a\} \cdot \text{Sec } A \cdot \text{Cosec } d \end{aligned}$$

Also by 842

$$\begin{aligned} M_1 r &= C \cdot \cos M_1 = C (1 - 2 \sin^2 \frac{1}{2} M_1) \\ &= C - 2 C \cdot \sin^2 \frac{1}{2} M_1 = C - C_1 \end{aligned}$$

$$\begin{aligned} \text{Where } C_1 &= 2 C \cdot \cos \{\frac{1}{2} (A + a + d)\} \cdot \sin \{\frac{1}{2} (A + a + d) - a\} \cdot \\ &\quad \text{Sec } A \cdot \text{Cosec } d \end{aligned}$$

$$\text{Prop Log } C_1 = \text{Prop Log } C + \text{Log } \left\{ \frac{1}{2} \cdot \text{Sec } \left\{ \frac{1}{2} (A + a + d) \right\} \cdot \text{Cosec } \left\{ \frac{1}{2} (A + a + d) - a \right\} \cdot \text{Cos } A \cdot \text{Sin } d \right\}$$

$$\text{Similarly Prop. Log } C_2 = \text{Prop Log } c + \text{Log } \left\{ \frac{1}{2} \cdot \text{Sec } \left\{ \frac{1}{2} (A + a + d) \right\} \cdot \text{Cosec } \left\{ \frac{1}{2} (A + a + d) - A \right\} \cdot \text{Cos } a \cdot \text{Sin } d \right\}$$

Also as in 842,

$$C_2 = \frac{1}{2} \text{Cot } d \{ (M M_1)^2 - (M_1 r)^2 \} \cdot 60 \text{ Sin } 1'$$

$$D = d - M_1 r + S_1 s + m r$$

$$= d - (C - C_1) + (c - C_2) + C_2$$

$$= d - (C + C_3) + (c + C_1) + C_2$$

Hence the rule.—For the 1st Correction (C_1). To the Log Cos of the Moon's Apparent Altitude (Cos A) add the Log Sin of the Apparent Distance (Sin d) the Constant 9.6990 (Log $\frac{1}{2}$), the Log Sec of the half sum $\left\{ \text{Sec } \frac{1}{2} (A + a + d) \right\}$, the Log Cosec of the first remainder $\left\{ \text{Cosec } \left\{ \frac{1}{2} (A + a + d) - a \right\} \right\}$ and the Prop Log of the Moon's Correction of Altitude (Prop Log C); the sum (rejecting tens) is the Prop Log of the 1st Correction (Prop Log C_1).

For the 2nd Correction (C_2). Take the difference between the Moon's Correction of Altitude (C) and the 1st Correction (C_1) $\{M_1 r = C - C_1\}$. Enter table 56 with the Apparent Distance (d) and the Moon's Correction of Altitude (C) and take out the seconds $\left\{ \frac{1}{2} \text{Cot } d \cdot C^2 \cdot 60 \text{ Sin. } 1' \right\}$. Enter again with the above difference ($M_1 r$) take out the corresponding seconds $\left\{ \frac{1}{2} \text{Cot } d (M_1 r)^2 \cdot 60 \text{ Sin. } 1' \right\}$ and subtract them from those taken out before; the remainder is the 2nd Correction (C_2).

For the 3rd Correction (C_3). Interchange Moon and Sun (or Star) in C_1 .

Subtract from the Apparent Distance (d) the Moon's Correction of Altitude and the 3rd Correction $\{-(C + C_3)\}$; add the 1st Correction, the Sun's (or Star's) Correction of Altitude $\{+(C_1 + c)\}$ and apply the Moon's 2nd Correction as directed in Table 56 $\{+C_2\}$; the result is the True Distance (D).

W. H. BOLT.

Nautical Academy, 10, King Street, Tower Hill.

EXPORT OF PAPER-MAKING MATERIALS FROM SWITZERLAND.—BOARD OF TRADE, Oct. 24.—The Board of Trade have received from the Secretary of State for Foreign Affairs a copy of a decree of the Swiss Federal Council, fixing at 2f. per quintal the export duty on linen and cotton rags and old cordage and cables for the manufacture of paper. Other materials used in paper making, such as refuse from cotton manufactures and paper pulp, will be subject to an export duty of 10c. per quintal.

HAMBURG TO HONGKONG.

THE following notes from the master of the Danish brig *Iylland* have been communicated to us by Messrs. Imray and Son:—

“ March 16th, 1876, in the Java Sea, bound for Hongkong. About 6 p.m. south point of Sibaroo bore N.E. by N. 6 miles; saw bottom under the vessel; hove lead, and found 9, 7, and 6 fathoms coral. Tacked ship; in coming round 20 fathoms, no bottom; shortly after had 10, 8, and $6\frac{1}{2}$ fathoms. Continued in the latter depth $2\frac{1}{4}$ miles, course S. by W. $\frac{1}{4}$ W., then had 10 fathoms and 30 fathoms, no bottom. Stood out on the same course 15 miles; tacked, and made good a N. by W. $\frac{1}{4}$ W. course for $9\frac{1}{4}$ miles till midnight, then had 30 and 10 fathoms coral and 30 fathoms, no bottom until 1 a.m. Steered same course 14 miles, and sighted again Sibaroo, bearing N.E. by N. 10 to 12 miles distant.

“ On the afternoon of the 16th passed close to or over the Anroa Bank, as marked on the British Admiralty Charts, but saw no breakers from the topsail-yard, nor could bottom be obtained with from 60 to 90 fathoms line. Current setting about east.

“ March 23rd.—At noon in lat. $2^{\circ} 0' 30''$ S., long. $117^{\circ} 01' 30''$ E., in the Macassar Strait, saw several islands and sandbanks not marked on chart; had 40 fathoms, no bottom. The nearest sandbank looked white, and was 10 to 12 feet above water, bearing S. by E. 7 miles distant; in front of this bank was a long reef, in some places above water and with very little water over it; between the reef and the bank the water seemed deep and about 1 mile in width. From noon position three white sandbanks bore S.S.E. $\frac{1}{4}$ E. 10 miles distant, one island with trees on S.E. $\frac{1}{4}$ E. 20 to 25 miles, and a smaller one with bushes bearing S.E. $\frac{1}{4}$ E. 14 miles. These two islands when in one bore E.S.E. In the afternoon saw several larger islands farther to the S.E.

“ Left Strait of Macassar on the 4th of April; while passing through had little or no wind during the day; after sunset, when near the Borneo shore, heavy thunder and rain until midnight, after that light land breeze till morning. The current set south 25 to 30 miles a day.

“ In Celebes Sea had easterly winds light, and a current setting between south and west 30 miles a day.

“ April 9th.—Tawi Tawi in sight; tried on the 10th to pass to the westward of Siassi, but found current E.S.E. for 24 hours, consequently passed to the eastward, and remained for one tide in Tapul Strait, tide running 4 knots. Bearings at anchor, in 13 fathoms north point of Tapul, in N. 29° W.; north point of Siassi, in S. 86° W.; had 30 fathoms under the stern. Weighed and worked through to the westward of Sulu with N.N.W. winds; next two days calm and very little tide.

"At noon the 18th of April in lat. $6^{\circ} 13' N.$, south point of Panducan bore west 3 miles distant. Extremes of Teomabal bore N.E. $\frac{1}{2}$ N. and N.E. $\frac{1}{2}$ E., and appeared the same distance off as Usadda. South points of Pontucunan and Babuan in one bore east; soundings, 17 fathoms fine sand. Steered N.N.E., ship going at the rate of 1 knot and less; had shortly after 13 fathoms, and kept the same depth till 10 p.m., had then 8; 7 fathoms let go anchor. Teomabal south point bore then E.N.E. $\frac{1}{2}$ E., Tubigan east point N.N.E., and Kularrein N.W.; current set N.W. 1 knot. Sounded with a boat to the N.E. of ship for about a mile, and found nothing less than $6\frac{1}{2}$ fathoms.

"To the N.W. of Tubigan there is a small sandbank close to the points as marked on chart. Panducan and Kularrein seem to be about the same length north and south, 4 to 5 miles; but Panducan does not stretch so far north, and Kularrein stretches farther south than marked on chart.

"At 1 a.m. weighed, and stood out N.E. by E., then slack water, with soundings from 6 to 8 fathoms till 1 mile outside, then had 15 fathoms; north points of Tubigan and Teomabal are bearing N.W. and S.E. of one another, and about 7 miles apart.

"Steered N.N.E. 3 miles, with 15 fathoms; had then 8 and 7 fathoms for 7 miles; made good a north course, current setting N.W. $1\frac{1}{2}$ knots. As it then was daylight, I saw the bottom plainly, chiefly white sand, with coral bushes. From the topsail-yard, saw discoloured water far away E. and W., but there appeared not to be shoaler water. The last casts were 8-12 fathoms, then 25-50 fathoms, no bottom. The edge of the bank stretches E.S.E. and W.S.W., with several spits running out N., and shows a good way off, with discoloured water and tide ripple.

When Teomabal bore South, made the long. $120^{\circ} 54'$ East of Gras Chronometer found to coincide, before and after, with all the headlands passed. Teomabal lies farther to the N.E. than marked on charts, and I think Pontucunan and Babuan are also placed too southerly, else my observations coincided with those of the surveys of 1878.

A small island, placed due North of Kularrein, I could not see from the topsail-yard. The strait between Panducan, Kularrein, Tubigan to the West and Teomabal to the East, seems clear of danger, and, with convenient depth for stopping, the tide could, I think, be recommended to mariners that trade between these islands, if it is not known before this. While between the islands, saw a great number of canoes, but only a few came near the vessel, and seemed shy, the men having nothing but their oars and a couple of bad fishes. Passed to the Westward of the Philippines, and arrived in Hongkong the 29th of April.

CORRESPONDENCE.

RULE OF THE ROAD AT SEA.

To the Editor of the "Nautical Magazine."

S.S. Moulmein, Calcutta, 26th Sept., 1876.

DEAR SIR,—On my arrival here the other day, while looking over the *Nautical Magazine* for May of this year, I came across the article on the "Rule of the Road at Sea," and was very glad to see that we are to have "Optional Sound Signals," for foggy, misty weather, to indicate the course vessels are standing, or are about to take. This is, I think, a great desideratum, and I see in the articles—Nos. 12, 15, and 19—such measures introduced as will materially contribute to the safe and efficient navigation of the seas. Article 19 fully expresses my ideas (and, I think, those of many practical men), respecting the use of the terms, "port" and "starboard" helm, used to indicate the way a vessel must proceed under certain circumstances; and though rendered unmistakable by the additions now proposed, "so that the vessel's head may go to starboard or port," it appears to me the end would have been attained if the position of the helm were not mentioned, even with sailors accustomed to the technicalities; and much more so would the rule be less puzzling to foreigners, who use the helm under different terms, and to young and inexperienced seamen among ourselves. It is a useless string of words, which, coupled with the new and modified (?) part of the Rule, gives an apparent contradiction, which only experience can see through at once. I have known "old salts," who always hesitate a moment before giving the helm, after receiving the order, starboard or port, and often heard officers and pilots (occasionally) who gave the order rather dubiously, and more than once heard them correct themselves—as "Starboard!—I mean port!"

With regard to the Articles 12 and 19, in which it is proposed (for I believe it has not yet become law), that sailing vessels shall indicate the tack they are on in foggy weather by the number of sounds of the fog-horn, viz.:—Starboard tack, one, and Port tack, two blasts; and the "optional signals," for steamers, viz.:—One whistle to signify, "I am about to alter my course to starboard;" and two blasts, "I am about to alter my course to port." Every one must see the advantages of such signals; but it is to be regretted that the signals and their meanings were not reversed, as then we should have such a capital "aid to memory" in the very signal itself indicating the tack on, or the intended alteration in the course of a steamer, by each sound standing for one syllable, thus:—Port, one syllable, one sound; Starboard, two syllables,

two sounds; and in the case of a steamer reversing her engines, three sounds would indicate, Full speed a-stern.

I proved the principle once on a passage from Bombay to Liverpool. I shipped to work my way home in a steamer, and, soon after sailing, found that the look-out man, instead of reporting any vessels he sighted, verbally struck the bell on the fore-castle-head. I told the mate that I thought it a first-rate idea, but he said it did not answer very well, for the men were always striking the wrong signal; and on hearing the signal, when the officer was staring for the approaching vessel on the side indicated by the signal, he often just looked round to find it was really on the opposite side. The signals were:—one bell, a vessel to port; two bells, to star-board; and three bells, a-head. The entire passage out was made without any of the men learning this correctly, so that, so far as the side the vessel was seen on was concerned, the complicated system failed. Of course, no notes carried about were practicable on dark nights, &c. Well, the thought suggested itself, and I went and explained to the men, that if they only thought for a moment, it was impossible to forget the correct signal, for Port, being a word of one syllable, one bell; Starboard, two syllables, two bells; and, when a-head, anything; if on neither bow, must be, Right a-head, three bells. This occupied about two minutes, and from that hour every man was as confident of the right signal as he was that he saw the object, and there were no more mistakes.

Thinking of this, I feel certain that if the same arrangement were introduced with regard to the "New Sound Signals," it would do away with great anxiety, much needless drill, and contribute in no small degree to the practical and efficient working of such signals. One would learn, past all possibility of error, a rule which—trifling and easy as it may appear—will require years of practice to thoroughly and completely master in cases where immediate decision is indispensable, and where the nervous system may be so wrought upon by sudden emergency or prolonged anxiety, as to affect the memory.

MNEMON.

CANI ROCKS LIGHTHOUSE, TUNIS.

To the Editor of the "Nautical Magazine."

SIR,—Lighthouses when under proper management are of inestimable value and assistance to the mariner, but on the contrary, they prove a source of great danger and anxiety when they cannot be relied on, and when the light is not duly and regularly exhibited. As a caution to those who may be navigating in the Mediteranean, I beg to send you the following particulars:—

The "Cani," or "Dog Rocks," two rocky islands which lie 6 miles

off the coast of Tunis, are supposed to be indicated at night by a fixed light visible 17 miles, but during the night of Monday, the 16th October, whilst on a voyage from Newport to Port Said, and passing between those rocks and the mainland, I looked out very anxiously, but in vain, for the light, and on approaching them, although all my officers and myself, with the assistance of night glasses, could see, not only the rocks, but the lighthouse itself quite distinctly, yet not the vestige of a light was to be seen exhibited therefrom.

I sounded the steam whistle whilst passing, but without any apparent effect.

As several ships have been lost or damaged on these rocks, which lie right in the track of vessels, and are very dangerous, would it not be advisable to discontinue the light altogether, or that some steps should be taken by the proper authorities to ensure its exhibition with that punctuality which can alone render it of service to those for whose guidance it was originally established? The present uncertainty with regard to the light makes the rocks to be a more serious danger than if there were no light at all.

Since my arrival at this port I have been informed by Captain Coates, of s.s. *Royal Welsh*, that he passed about three miles outside of the "Dog Rocks" during the night of 14th inst., and a faint light appeared for a few minutes, but disappeared altogether when it was a-beam of his ship.

I may remark that some years ago whilst on a voyage to Alexandria, and passing these rocks during the daytime, a signal for assistance was shown from the lighthouse, and on a boat being sent to see what was required, it was stated by the keeper that they had no means of procuring a light, and he begged for some matches, a supply of which was left with him.

I am, Sir, your obedient servant,

JNO. LAING BROWNE,

Master ss. *Lumley Castle*.

Port Said, October 27th, 1876.

GALITA ISLAND.

To the Editor of the "Nautical Magazine."

SIR,—I wrote on this same subject on the 4th January, 1873, and you were kind enough to give my letter publicity in your valuable Magazine. In that letter I strongly recommended a light on Cape Bon, also a light on Galita Island, or somewhere in the vicinity of the Sorrelle Rocks. Since that date, as you are no doubt aware, a valuable light has been

established on Cape Bon, which is a great boon to all shipowners, and a step in the right direction, but I would still urge the necessity of a light on Galita Island, or its immediate neighbourhood. The coast in this vicinity is not over well lighted, although there is a capital site for a lighthouse on the Fratelli Rocks, which would be a good guide for going along the coast on a dark night, when other objects could not be seen. But this I would not urge so much as I would a light on Galita Island. Every shipmaster knows, who has navigated this part, that the Sorrelle Rocks are very dangerous, with absolutely no night mark for a guide, unless you keep close to the coast. In former times it was not of so much consequence, when there was few or no steamers. Sailing vessels generally kept clear, or avoided this part of the coast, not caring to get too close on account of the barbarous nature of the natives, who did not scruple to murder all hands should the vessel get too close, or be becalmed. But now it is quite different. This is the highway for steamers trading up and down the Mediterranean; and those rocks lie almost in their very track. It is not very long ago that two steamers, the *Ceres* and the *Justitia*, if I remember rightly, got on those rocks, and although they both succeeded in getting afloat again, it was not without considerable damage; and I have no doubt whatever that many a good ship has been dashed to pieces on those cruel rocks. Many a wild cry has there gone up to Heaven in vain, and all hands have gone down in the darkness and silence to a watery grave, and no one left to tell the tale to the bereaved mourners at home. That such a danger should exist in this present age of enterprise, and no means whatever used to mark it, I cannot comprehend.

I see by a notice in your October number for the present year, that a light has been established on Alboran Island; surely if there is a necessity for a light there, there is much more necessity for some night mark to clear the Sorrelle Rocks. Alboran is not in the direct track of steamers; in fact, I might safely say without fear of contradiction, that very few steam shipmasters ever saw it in their lives, at any rate, not since they have been in steam. But with this danger it is altogether different; as I said before, it is almost in the direct track. What I would suggest is this. A powerful light on Galita Island, with a red sector shown over the bearing of the Sorrelle Rocks. But to this many will be prepared to object, and reason that as the light would be so high it would become obscure in hazy weather. Then why not erect a lighthouse on the Sorrelle Rocks (four feet is the least water reported), or have a light-vessel in the vicinity, and another light on the Fratelli Rocks? Those two lights would then lead clear of all dangers, including Galita itself. Shipmasters would thus be saved a great deal of anxiety when navigating this dangerous vicinity, when, perhaps, he is

not certain of his exact position, and to make sure, has to go miles out of his straight course to clear those dangers.

Apologising for troubling you again on this subject, but trusting that through you giving this publicity the subject may be considered by those in whose power it lies to bestow such a boon to all navigators, who, I am quite sure, will join with me in being ever grateful.

I remain, Sir, yours respectfully,

GEO. C. COATES,

Master ss. *Royal Welsh*.

Port Said, October 20th, 1876.

BOOKS RECEIVED.

Two Years Aboard the Mast ; or, Life as a Sea Apprentice. By F. W. H. Symondson. Edinburgh and London : W. Blackwood & Sons. 1876.

We have never met with a book giving such a truthful account of life in the mercantile sea service as is given in the volume before us. The author in his work shows himself to be a keen observer ; his narrative is unpretending, but, nevertheless, extremely interesting, and is divested of all the foolish romance which many writers love to throw around a sailor's life.

The story professedly deals with two years only of an apprentice's service at sea as it is at the present day, but, as a matter of fact, the whole routine of life on shipboard is truthfully portrayed, and the reader may gather accurate notions of the relative positions and the respective duties of all on board, from the captain down to the ordinary seamen.

We are not much surprised to learn that on the ship leaving the Thames, for her voyage to Sydney, "the hands were all in the fore-castle, more or less drunk, and, as is customary going down the river, no work was required of them, we apprentices getting what little odd jobs there were to be done about deck." And as regards the advance note, he says, "The advance-note system is answerable for half the casualties and crimes leaving the dock prior to sailing. Thanks to it, whole crews are carried aboard dead drunk, who show their first signs of life by rioting, and sometimes mutiny." In reference to the Sailor's Home, our author says, "It is not in special favour with the majority of seamen. I do not consider it a home ; nor can this be wondered at when

we take into account the stringent rules by which they must abide during their sojourn under its roof. . . . When he (the merchant sailor) quits his ship and, as he styles it, becomes his own master, he likes to carry on as he chooses. . . . Having all night in, he will get up when he likes, go to bed ditto, take his meals when he pleases, and select his own dishes, and won't put his hand to a thing. That is the tar's *beau ideal* of happiness."

These views are hardly such as would meet favour with many public speakers and writers on the subject of our seamen, but that they are founded upon accurate knowledge of the seaman's character and habits there is little room to doubt.

Mates and apprentices ought to find a great charm in this book, it will recall all kinds of pleasant and, probably, unpleasant recollections. A very noteworthy feature of the book is that the spirit of a gentleman makes itself evident through the entire narrative, and chiefly shows itself in the narrator's story of his own doings.

The Sailor's Horn-book for the Law of Storms, &c. By Henry Piddington. Sixth Edition. London: Williams and Norgate, 17, Bedford Street, Covent Garden. 1876.

THE name and works of Piddington are too well known among nautical men to require any lengthened comment from us at the present moment, but we nevertheless are very glad to give a few words of notice to a new edition of his most valuable text-book. Although recent investigations have tended to modify some of the theories put forward by this great pioneer in meteorological science, yet the manner in which he directs attention to facts that bear upon the subject, and to occurrences which take place in the neighbourhood of great atmospheric disturbances, facts and occurrences which are likely to be overlooked by many, makes his book a most valuable one to the mariner.

His advice is well worth the most careful attention; and although, to make use of his horn-cards requires some study and practice, yet they can undoubtedly be made very serviceable if the sailor bears in mind what Mr. Piddington himself says:—"That it is the cool and patient consideration of emergencies in fine weather and at leisure that makes the able and ready seaman when a crisis arrives."

A sixth edition of such a book speaks for itself. It is a standard work, and ought to be in the hands of all careful navigators.

MONTHLY ABSTRACT OF NAUTICAL NOTICES.

No.	PLACE.	SUBJECT.
235	NORWAY—Selbjörus Fiord—Nyleden Channel— Kingholmen Island	Establishment of a Light.
236	NORWAY — Bommelen Midtholmen Island — Moster-havn	Alteration in Light.
237	NORWAY—Valderö—Valderhoug	Alteration in Light.
238	NORTH SEA—Zuider Zee—Ameland Gat	Establishment of a Light.
239	NOVA SCOTIA—Sambro Island	Alteration in Fog-Signal.
240	ENGLAND—South Coast—Portland	Alteration in Breakwater Light.
241	ENGLAND—South Coast—Portland	Fog-Signal at Break-water Light-house.
242	ENGLAND—East Coast—Medway River Entrance —Garrison Point	Alteration in position of Light.
243	NORTH SEA—Netherlands—Noordseehaven	Establishment of Leading Light.
244	NORTH AMERICA—West Coast—California—San Francisco Bay—Bonita Point	Intended alteration in position of Lighthouse.
245	UNITED STATES—Delaware River—Bulkhead Shoal—New Castle	Establishment of Range Lights.
246	UNITED STATES—Delaware River—Bulkhead Shoal—Deep-water Point	Establishment of Range Lights.
247	SOUTH AMERICA — West Coast — Inocentes Channel	Existence of a Rock.
248	SOUTH AMERICA—West Coast—Chile—Tortora- lillo Bay	Existence of a Sunken Rock.

NAUTICAL NOTICES.

235.—NORWAY. — *Selbjörus Fiord.* — *Nyleden Channel.* — *Kingholmen Island.* — A light of the fourth order is now exhibited from a lighthouse on the western point of Kingholmen Island. The light is a *fixed white* light visible between the bearings of S. $\frac{2}{3}$ E. (through west) and N. $\frac{1}{3}$ W. The bearing S. $\frac{2}{3}$ E. leads clear of the east side of Tranö and of the islands northward. The light is elevated 80 feet above the sea, and should be seen 10 miles. The lighthouse is a gray stone building. Position, lat. 59° 58' 10" N., long. 5° 18' 20" E. The light is exhibited from the 15th July to the 15th of May.

236.—NORWAY. — *Bommelen.* — *Midtholmen Island.* — *Moster-Havn.* *Light.* — This light has been changed from a fixed white light to a *fixed red* light.

237.—NORWAY. — *Valderö* — *Valderhoug Light.* — This light has been changed from a fixed white light to a *fixed red* light.

238.—NORTH SEA. — *Zuider Zee.* — *Ameland Gat.* — A light is now exhibited from an iron stand on the westernmost sand hill of Ameland, about 550 yards S. $\frac{1}{3}$ E. from Hollum beacon. The light is a *fixed white* light, visible between the bearings of S.W. by W. (through East) and

N.W. by N. ; it is elevated 49 feet above high water, and should be seen 12 miles. The light is intended chiefly for the guidance of fishing vessels. Position, lat. 53° 26' 20" N., long. 5° 37' 10" E.

239.—NOVA SCOTIA.—*Sambro Island*.—A steam fog-whistle has been established on the southern part of Sambro island near the entrance to Halifax harbour. The whistle is 90 feet above high water, and in thick or foggy weather and snow-storms is sounded as follows:—A blast of *ten seconds'* duration in each minute, with an interval of *fifty seconds* between each blast. The guns formerly fired during thick and foggy weather have been discontinued.

240.—ENGLAND.—*South Coast*.—*Portland*.—The fixed red light exhibited from the outer part of the fort at the north end of Portland breakwater has been discontinued, and a light is now exhibited from a staff situated in the centre of the fort. The light is a *fixed red* light, visible from seaward and over Portland harbour, but it is obscured by Portland peninsula between the bearings of N.N.E. and E. by N. $\frac{1}{4}$ N. The light is also visible from West bay, over Chesil bank, between the bearings of E. by N. $\frac{1}{4}$ N. and E.S.E. ; but to an observer 15 feet above the sea approaching within $2\frac{1}{4}$ or 2 miles of Chesil bank, the light will dip below the land. The light is elevated 57 feet above high water, and should be seen eight miles.

241.—ENGLAND.—*South Coast*.—*Portland*.—A fog-bell has been established at the breakwater light, which in thick or foggy weather will be sounded at the following intervals of time—viz., 39, 28, 27, 37, 18, and 20 seconds.

242.—ENGLAND.—*Medway River Entrance*.—*Garrison Point*.—The *red* light which was formerly exhibited from the left demi-bastion near Garrison Point, Sheerness, has been removed, and is now placed on the top of the outer or north-western face of the circular fort on the point. The light is elevated 50 feet, and should be seen 5 miles. On entering the Medway, this light is lost sight of on a S.S.E. bearing.

243.—NORTH SEA.—*Netherlands*.—*Noordzeehaven*.—With respect to Nautical Notice, No. 21 (February, 1876), on the intended establishment of leading lights for entering Noordzeehaven, two lights of the sixth order are now exhibited upon the sand hill on the south side of the channel. The lights are exhibited from iron supports, and bear from each other N.W. by W. and S.E. by E. distant 656 yards. The western, or outer light, is a *fixed red* light, elevated 61 feet above high water, and should be seen 6 miles. The eastern, or inner light, is a *fixed white* light, elevated 88 feet above high water, and should be seen 15 miles. The lights in line, lead in mid-channel between the stone piers. Position of eastern light, lat. 52° 27' 45", long. 4° 35' 30" E.

244.—CALIFORNIA.—*San Francisco Bay*.—*Bonita Point*.—It is

intended to remove the present lighthouse on Bonita point to a less elevated site, at the extremity of the point. During the removal a light of the fourth order will be exhibited from a wooden structure near the present position of the lighthouse.

245.—UNITED STATES.—*Delaware River.*—*Bulkhead Shoal.*—*New Castle.*—Two range lights are now exhibited about $1\frac{3}{4}$ miles below New Castle to mark the channel passing Pea Patch island and Fort Delaware. The lights are *fixed white*, and distant about half a mile from each other. The front light is elevated 19 feet above high water, and the rear light 89 feet. The buildings from which they are exhibited are painted white.

Note.—This range, in connection with Deep-water point range, marks the channel from below Pea Patch island to Deep-water point. The point of intersection being on the north side of the channel, in about 18 feet water, and vessels drawing that water, or more, must be careful to pass from one range to the other a little to the eastward of, when they intersect.

246.—UNITED STATES.—*Delaware River.*—*New Jersey.*—*Bulkhead Shoal.*—*Deep-water Point.*—Two range lights are now exhibited on the New Jersey side of the river, to mark the channel passing the upper part of Bulkhead shoal. The lights are *fixed white*. The front light is elevated 84 feet above high water and rear light 97 feet. The building from which the front light is exhibited is painted white and the iron tower of the rear light is painted black.

For Note, see preceding Notice.

247.—SOUTH AMERICA.—*West Coast.*—*Inocentes Channel.*—Information has been received that the rock reported to lie S.W. $\frac{1}{4}$ S., three-quarters of a mile from Europa point (east side of Inocentes channel), but the existence of which was considered doubtful, has again been seen; the master of the British steam vessel *Dacia* having, on the 4th August, 1876, at low water spring tides, observed the rock in that position, and that it was marked by kelp. This rock has been replaced on the chart.

248.—SOUTH AMERICA.—*West Coast.*—*Chile.*—*Tortoralillo Bay.*—Information has been received that a rock (*Zoriada rock*) about 20 yards long north and south, with 14 feet water over it, lies 3 cables N.E. $\frac{1}{4}$ N. from the northernmost of three small islands, off the west point of Tortoralillo bay. The sea generally breaks over the rock, but there are 12 to 18 fathoms close around it.

Directions.—The anchorage in Tortoralillo bay is about 2 cables eastward of the largest island, in 9 to 12 fathoms, sand; the bottom in all other parts of the bay is rocky. In entering the bay the northern small island, on which is a flagstaff, may be rounded within one cable.

HYDROGRAPHIC NOTICES PUBLISHED BY THE ADMIRALTY.

- No. 26.—South Indian ocean, Mauritius island. Description of dangers off the North part of the island, and Directions for approaching Port Louis. By Navigating Lieutenant J. E. Coghlan, 1876.
- No. 27.—West Indies. Haiti or San Domingo. Additional information relating to West and South coasts.
- No. 28.—Carimata Strait. Description of a portion of the islands, and dangers southward of Billiton island. By Commander R. H. Napier, H.M. surveying vessel *Nassau*, 1876.
- No. 92.—China. Hong Kong to the Yang-tse-Kiang, by in-shore passage. Directions for making the in-shore passage from Hong Kong to the Yang-tse-Kiang by vessels of moderate steam-power during the N.E. monsoon. From a report by Commander C. E. Buckle, H.M.S. *Frolic*, 1876, aided by Mr. T. E. Cocker, commanding the Chinese revenue cruiser *Ling-Feng*, 1876.
- No. 30.—Borneo, Tong-King gulf, Hainan strait, and Namsa islands ; information relating thereto. Derived from various authorities.

CHARTS, &c., Published by the Hydrographic Office, Admiralty, to the end of November, 1876, and sold by the Agent, J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill.

No.	Scale.		a.	d.
1290	m = 0·18	Patagonia, East Coast:—Nuevo Gulf, with plans of Port Madrin and Cracker Bay... ..	1	6
81	m = 2·0	Bay of Bengal:—Coringa or Coconada Bay	1	6
2824	m = 0·05	North America, West Coast:—Cape San Lucas to San Diego Bay and Gulf of California	2	6
2828	m = 0·05	North America, West Coast:—Manzanilla Bay to Gulf of California ...	2	6

OUR OFFICIAL LOG.

BOARD OF TRADE INQUIRIES.

Name of Vessel.	Port.	Nature of Casualty.	Judgment of Court.	
<i>Chalco</i>	Bristol... ..	Abandoned	Vessel justifiably abandoned. Want of due care and caution on part of the 2nd officer of the <i>Dorunda</i> . Certificate returned.	
<i>Dinorah</i> and	Shields	Collision		
<i>Dorunda</i> (s.) ...	Glasgow			
<i>Humber</i>	Belfast	Stranded...		Master reprimanded.
<i>John William</i> ...				
<i>son</i> (s.)	S. Shields ...	Ditto ...	Master's certificate returned.	
<i>Rob Roy</i>	Shoreham ...	Ditto ...	Ditto ditto	
<i>Scotstoun</i> ...	Glasgow ...	Foundered	Charge withdrawn after hearing evidence of master and officers.	
<i>Vigilant</i> (smack) and	Dublin	Collision	Smack to blame for the collision. Certificate of the Master of the s.s. returned.	
<i>Cymba</i> (s.) ...				

QUARANTINE NOTICE.—BOARD OF TRADE, NOV. 10.—The Board of Trade have received, through the Secretary of State for Foreign Affairs, a copy of a despatch from Her Majesty's Consul at Lisbon, enclosing a translation of a notice issued by the Portuguese Government declaring the port of New Orleans to be infected with, and all the other ports of the State of Louisiana suspected of, yellow fever since Oct. 2.

THE ALBERT MEDAL.—BOARD OF TRADE, NOV. 14.—The Queen has been graciously pleased to confer the Albert Medal of the Second Class on John Skelton Summers, master of the fishing-boat *Flying Scud*, of Peterhead. The following is an account of the services in respect of which the decoration has been conferred:—On the 3rd of August, 1876, Summers was riding by his nets, 35 miles east-south-east from Buchanness, and broke adrift about noon in the height of a violent gale, with a dangerous cross sea running, accompanied with heavy rain. About 15 minutes after getting his close-reefed foresail set to make for the land, he observed a boat on his weather bow, about a quarter of a mile off, with sail down, and making signals of distress. He hauled up for her at once, and, on nearing, observed she was swamped, and her mast lying over to leeward at an angle of about 45 deg., rendering great

caution necessary in approaching her, for fear of carrying away his own mast, as she rolled so heavily in the trough of the sea. At the first sweep, close on her port quarter, Summers picked off two men with lines, but he had to wear round and come up to her again five times before he succeeded in getting off the third man ; but, nothing daunted, he repeated his manœuvre nearly 20 times before he got off the last man, who was the master, and who was much exhausted. Summers first observed the distressed vessel at about 12.30, and it was 4 p.m. before the last man was dragged on board. In consequence of the violence of the gale he did not reach Peterhead until 4 o'clock next morning. The total number of men rescued was six ; and there is little doubt that this could not have been effected if Summers had not displayed great coolness and intrepidity, combined with very skilful handling of his boat.

SOUTH-EAST COAST.—PORT MACDONNELL.—The following notice to mariners has been received from the Marine Board, Port Adelaide, South Australia :—“ Notice is hereby given, that in consequence of several vessels having been wrecked between Cape Northumberland Lighthouse and the south end of Rivoli Bay, the following marks should be carefully attended to. In the Australian Directory, 1868, published by the Lords Commissioners of the Admiralty, the directions are that vessels approaching Cape Northumberland from the north-westward should never sight the red or white light on a bearing more southerly than east half south, and on seeing the green light should immediately alter the course more southward, so as to give a good berth to the outlying reefs westward of the Cape, which run parallel with and extend one mile from the shore. Vessels from the eastward should not bring the white or red light to bear to the westward of west-north-west ; and when the green light becomes visible on that bearing should steer more southerly, in order to give a wide berth to the reef, which stretches to the eastward from Cape Northumberland. In bad weather with the wind hanging from the southward, it will be advisable to keep Cape Northumberland at such a distance as will enable a vessel to pass the lighthouse without seeing the green light ; and should the weather be thick or it be blowing hard, it will be prudent not to sight the red light, which under such circumstances will not be seen at the former distance. The coast north-westward of Cape Northumberland is low, and owing to the heavy ocean swell which sets directly on shore should be very carefully avoided. An eddy current to the northward has sometimes been experienced within ten or twelve miles of the land, between Cape Northumberland and Lacedpede Bay, apparently occasioned by a current which Captain Flinders found in the middle of April setting toward the Cape from the W.S.W. at the rate of $\frac{1}{2}$ (half) a knot. Captain Douglas in his survey of this part of

the coast does not mention the existence of a current, but cautions navigators to give the coast a wide berth, owing to the heavy ocean swell which sets directly in shore, and should be carefully avoided. In the report of the Commissioners appointed by His Excellency the Governor-in-Chief to inquire into the circumstances connected with the wreck of the steamship *Admella*, it is stated that the loss of the *Admella* is to be attributed chiefly to the effects of a current which appears to have been setting towards the coast between Capes Willoughby and Northumberland on the 5th and 6th August, 1859. Captain King, of the P. & O. steamer *Bombay*, on or about the same date, in a letter to the Commissioners, states that between Cape Jaffa and Cape Northumberland he found a current setting strong towards the land, and he considered it as much as fifteen miles in an easterly direction in the run between the two Capes. On one occasion, in the Government schooner *Flinders*, after taking shelter from a S.S.W. gale in the S. end of Rivoli Bay, in August, 1872, the wind falling light and veering to the eastward, tripped the anchor and stood out to the W.S.W. for five or six miles, when it fell calm; found a current setting the schooner E.N.E. nearly one and a half miles an hour. Fortunately the wind freshened, and he got away from this dangerous coast. The master of the schooner informed me that he often felt a current setting towards the land. A vessel off the coast between Cape Jaffa and Cape Northumberland, when in soundings of forty-five fathoms and upwards is in a position of safety. It is therefore recommended that masters of vessels during night in thick weather, or in doubt, should verify their position by sounding.—R. H. FERGUSON,—President Marine Board, South Australia."

AWARDS TO CAPTAINS.—The Board of Trade have received, through the Foreign Office, a silver binocular glass, which has been awarded by the French Minister of Marine and Colonies to Captain Shannon, of the Pacific Steam Navigation Company's steamship *Iberia*, for his services on the occasion of the stranding of the French steamships *La Louisiana* and *La Gironde*, on the 20th of December, 1875; and also a binocular glass, awarded to Captain Gell, of the ship *Vanguard*, for rescuing and conveying to Liverpool four seamen of the French vessel, *Elisa Prosper*, which was abandoned at sea on the 29th of January, 1876. Her Majesty's Government have awarded a binocular glass to Captain Andrea Vallee, master of the Italian barque, *Padre Francesco*, of Canova, in acknowledgment of his services to the master and crew of the ship, *Jessie Scott*, of London, which was wrecked off Cape Horn on the 11th of September, 1875.

GENERAL.

DOVER HARBOUR.—The Dover Harbour Board has received a communication from the Board of Trade to the effect that it is not the intention of the Government to proceed next year with the Bill for the formation of a Harbour of Refuge at Dover.

SCURVY.—Before the discussion which has arisen in consequence of the outbreak of scurvy among the crew of the late Arctic Expedition is allowed to drop, it may be as well to recall the method which was adopted with marked success by the late James Haviland, F.R.C.S., in the early part of the present century. In the year 1809, Mr. Haviland was in medical charge of the *Sir William Pulteney*, one of a fleet of East Indiamen. Among his medical stores he laid in a plentiful supply of mustard and cress seed; and as this esculent can be readily grown on a wet flannel, the men had an abundant supply of "green meat" during their long voyage; and they were induced to eat plentifully of this with such benefit, that not a single case of scurvy occurred, either among the soldiers or sailors on board Mr. Haviland's ship, though all the other vessels of the convoy suffered more or less from that complaint during the voyage. His services on that occasion were fully recognised by the directors of the late East India Company, who awarded a special vote of thanks for his valuable discovery. As the value of mustard and cress as a specific against scurvy has been known for so long a period, it seems strange that it has not been brought into more general use. The seeds will germinate very readily on a wet blanket, in a moderately warm atmosphere, and thus the essentials of a delicate salad and an antiscorbutic can be provided at the same time.—*Medical Examiner*.

A FINE SAILING SHIP.—The *Melbourne Argus*, of September 2, announces the arrival on the 1st of that month of the Blackwall liner, *Melbourne*, the largest of Messrs. Green's iron ships, of 2,000 tons burden, commanded by Captain Richard Marsden. It was her second trip, and her run out in this voyage has shown her to possess sailing capabilities of no insignificant order. "In running down the longitude," the *Argus* says, "she sailed 5,129 miles in 17 consecutive days, or an average of about 300 miles a day, the best runs being 874, 365, and 352 miles a day. She left the East India Docks on June 10, and Gravesend on June 12, the pilot leaving her off the Start point at 6 p.m. on June 15, and a departure from the land being taken on the following day. Ordinary winds and weather prevailed to the tropics, which were entered on July 2,

and after a tedious drag through the N.E. trades, which were exceedingly light, the equator was crossed at midnight on July 14, in long. 30° 30' W. The tropics were quitted on July 24, and so little easting was there in the S.E. trades, that the ship had to tack three times before clearing the South-American coast. The meridian of Cape Agulhas was crossed on August 10, and after that the ship had it all her own way, strong fair winds prevailing, and enabling her to come along in the style above described. Cape Otway light was sighted at 8 p.m. on Thursday, August 31, and the Heads were entered at half-past 11 a.m., and but for the bad northerly wind which headed her coming up the bay she would have reached the anchorage on the evening of the same day. She was taken alongside the Sandridge railway pier to discharge her cargo yesterday, the 1st instant."

LOSS OF THE "WINDSOR CASTLE."—We regret to have to record the unfortunate loss of this fine vessel, of the Donald Currie Cape Line. The steamer left London on the 20th of September for the Cape, took in mails and passengers at Dartmouth on the 23rd of September, and proceeded on her voyage. She arrived at Madeira on the 28th of September, and was spoken the next day in lat. 31° N., long. 17° W. Since that time no definite news had been received of her until the intelligence arrived of her loss, all the crew, passengers, and their baggage and the mails being saved. It appears that the ship on the 19th of October struck on a reef off Dassen Island, where she remained in an upright position. Vague rumours on the subject reached Lloyd's, and re-insurances on the *Windsor Castle* were effected at £5 5s. per cent. The ship is now regarded as a total loss, but the cargo is being rapidly recovered. The cargo, which is valued at £50,000, consists of Manchester goods, iron, machinery, &c., and is insured in London. The ship herself is valued at about £60,000, and is fully insured. Messrs. Donald Currie and Co. complain that there is no light on Dassen Island, a deficiency which is a very possible source of danger, but which, it is stated, can scarcely be held as the cause of the loss of the *Windsor Castle*, as she, it is rumoured, was steering too near the land, and was thirty miles too much to the eastward. By the chart there appears to be no light upon Dassen Island, and this is not the first time that an accident has happened there. The *Windsor Castle* had for some years been carrying the mails to the Cape, having before that been on the Indian Line, where she made the fastest passages on record. In 1874, she was saved from burning by the judgment and skill of her captain (Mr. Howson), and we reported at the time the presentation of testimonials to him, and to several of the officers, by the Board of Trade.

THE SHIPMASTERS' SOCIETY.

THE rooms in Jeffrey's Square, St. Mary Axe, are now open for the accommodation of captains, and owners wishing to meet their captains. Strong endeavours are being made to render the place attractive and useful to shipmasters. The furniture is plain and good; everything is orderly and clean; there are plenty of newspapers, books, &c.; Greenwich time is to be had hourly by electricity; and for a young society everything looks promising. Money does not appear to be wasted, and many good friends have come forward with gifts or loans of models, books, maps, &c., likely to be of service. We appeal to those of our subscribers who are willing to help the Society to give or lend such models, charts, pictures, books, &c., as have a nautical interest. It is by generous assistance of this kind that the Society has so far progressed, and we are sure that it is only necessary to make it known that such aid is still wanted, and it will continue to be given. It is not to be expected that a Society of this kind will at once start into full-blown perfection; every other well-established institution in its infancy has had to grow and develope. So with the Shipmasters' Society. It is now growing, and there is every reason to hope and believe it will in time develope into a flourishing and useful institution. It is worth anyone's while to go and look at the rooms, and see how comfortably and sensibly they are fitted up.

A New Dock.—The Surrey Commercial Docks Company have opened a new dock, named the Canada Dock, designed to meet the necessary requirements of the timber trade, the present demands of which are attested by the stacks of timber in the company's yards. The Canada Dock is almost in the south-west corner of the company's system. It is rectangular in shape, and its western quay is over the East London Railway just before it enters the Thames Tunnel. Its dimensions are 1,500 ft. in length, 500 ft. in width, with a water area of $16\frac{1}{4}$ acres, and a depth of 27 ft. of water under Trinity high water level. It communicates with the existing Albion Dock by an entrance 50 ft. in width. The quay space surrounding the new dock is upwards of 21 acres in area. The first steamer to enter the docks was the steamer *Argyll*, of 1,185 tons, belonging to Messrs. Bailey and Leetham, of Hull and London, and this was followed by the fine sailing ship *Greyhound*, of 1,411 tons register, belonging to Mr. Nelson of South Shields.

INDEX TO VOL. XLV.

	PAGE.		PAGE.
Admiralty and Board of Trade ...	130	Cabot, Sebastian ...	577, 675
Advance-Note System, The ...	68, 635	Canadian Shipping ...	303
<i>Alberta and Mistletoe Collision</i> ...	50	Cani Rocks Lighthouse ...	1125
American Line, The ...	521	Cape to Australia ...	47, 638, 652
Antwerp, Port of ...	767	Cape Takli ...	701
Apprentices to the Sea Service ...	477	Cardiff and Newport ...	37
Arctic Expedition, The ...	1081	Carrier Pigeons on Board Lightships ...	480
Atlantic Navigation... ..	596	Cellular Ships of War ...	514
Atlantic Steam Ferries:—		Channel Tunnel and Railway ...	126
Guion Line	27	Charts, Incorrect	632
Dominion Line	119	Chili	189
White Star Line	316	Chinese Lights and Buoys ...	566
American Line	521	Chinese Ports	493
Atlantic Steam Ship Trade ...	479	Circular Ironclads	513
Australian Ships Missing ...	652	Classification of Ships, Compulsory ...	330
Austrian Ironclads	515	Coal, Spontaneous Combustion on	
Average. Rules for guidance of		Board Ship	905
Captains	730	Coastguardsmen	661
Barnes, Captain (<i>Locksley Hall</i>),		Collisions at Sea	1070
481, 633		Columbus, Christopher ...	577, 675
Barometer and Fire-damp, The ...	565	Combination of Shipowners 1, 87, 89, 27	
Barrister's Fees	547	Commissioners of Wreck ...	357, 1025
Becher, Death of Rear-Admiral		Compass Adjustment	132
A.B.	295	Compass Errors and Stranding of	
Berthon's Collapsible Lifeboats ...	659	Iron Ships	973
Berths, Movable	853	Compass, Instrument to Supersede ...	74
<i>Bessemer Saloon Steamer</i>	390	Compound Engines	48, 281
Board of Trade and Admiralty ...	130	Compulsory Classification ...	330
Board of Trade Examinations for		Condensing Engine, Compound Sur-	
Masters and Mates	271, 873	face	632
Board of Trade Returns, 476, 657,		Constantinople?—Who is to have	1018
852, 948, 949, 1033		Consular Jurisdiction as Regards the	
Boat-releasing Apparatus, Automa-		Mercantile Marine	309
tical	139	Contagious Diseases Acts	7
Boiler Explosion, A Strange ...	67	Cotton Statistics Act, 1868... ..	658
Boiler Explosion on Board H.M.S.		Courts of Inquiry and Nautical	
<i>Thunderer</i>	717, 870	Assessors	133
Boiler-Tube Stopper	157	Crab and Lobster Fisheries of	
Bolivia	191	Cromer	195
Boys for the Naval Reserve ...	280	Crews of Merchant Ships Committe ^d	
Brazil'... ..	100	to Prison	713
Brazil, Emigration to	750	Crimping at Greenock	639
Bremen, International Law Con-		Cromer Crab and Lobster Fisheries	195
gress	977	Crozet Islands, The	690
British Seamen of the Present Day	494	Cruise Round the World, A ...	48
Brussels Exhibition, The ...	720	Cyclone, Mauritius to Point de	
Bulkhead System of Iron Ships'		Galle	1
Construction	632	Cylindrical Vessels, Double and	
		Triple	1

	PAGE.		PAGE.
Dangers in the South Pacific, Doubtful	576	German Naval Courts	478
Deck Cargoes	465, 746, 907	German Society for Saving Life	445
Deck-loading, Mr. Plimsoll on	152	Glasgow, War Ships Building	948
Declaration of Paris	658	Greenock, Crimping at	689
Deep-sea Exploration 594, 748, 815, 897		Greenwich Royal Naval School	128
Depth of the Sea	391	Greenwich Royal Observatory	600
<i>Deutschland</i> , S.S., Wreck of the 19, 201		Guion Line, The	27
Discipline at Sea 551, 590, 703, 1008, 1026		Gun-Cotton as a Fog-Signal	1033
Distress Signals	637	Hamburg, Shipping Trade... ..	947
Dock, A New	1139	Hamburg to Hong Kong	1122
Dominion Line, The	119	Hansen, Captain	479
Double Altitudes	369, 451, 454	Health of Seamen	450, 797
Doubtful Dangers in the South Pacific	576	Heligoland, Fog-Signal at	1033
Dover Harbour	1137	Holmes's Inextinguishable Light	175
Duties of Merchant Seamen	528	Horse-Power, Indicated and Effective	629
		Hurricanes, Periodicity of	533
Eastern Question, The	1018	Illuminating Oils for Use on Board Ship	618
Eccentricities of Merchant Shipping Legislation	971	Immigrant Tax, United States	593
Egypt and England... ..	361, 459	Incorrect Charts	632
Emigration from Liverpool	262	Indian Marine Surveys	506
Emigration from the United Kingdom	388	Influences of Merchant Shipping Legislation	442
Emigration to Brazil	750	Instrument to Supersede Compass	74
Emigration to South America 38, 109, 188		Institution of Naval Architects 508, 628	
Emigration to United States	1047	International and Municipal Law	395
Engineers in the Navy	664	International Law Congress.—Bremen	977
England and Egypt... ..	361, 459	Irish Fisheries, State Aid for	412
Examination of Masters and Mates 271, 373		Iron Ships and Compass Errors	973
		Iron Ships, Strength of	49, 93
Falkland Islands	189	La Rochelle, Port of	401
<i>Faraday</i> Telegraph Ship	631	Leak Stoppers	138, 448
Farrer, T. H., Report on Merchant Shipping Legislation	222	<i>Lennie</i> Mutiny	656, 748
Fire-damp and the Barometer	565	Lifeboat Bridge and Lifeboat	447, 697
Fisheries, Irish	412	Lifeboat Lights	906
Fisheries of Norway, 1875... ..	893	Life-Saving Waistcoat	138
Fog-Signal at Heligoland	1033	Lightships.—Connection with the Shore	183
Fog-Signals on board Ship... ..	421, 1124	Liverpool and London, Ports of	851
Foreign Countries, Marine Insurance	51	Liverpool Shipowners and Marine Insurance	157
Foreign Ships and the Merchant Shipping Act, 1876	876, 971	Loan Exhibition of Scientific Apparatus, South Kensington	550
<i>Foundling</i> , The	181	<i>Locksley Hall</i> , The	481, 633
<i>Franconia</i> , The	395, 1079	London and Liverpool.—Customs Duties	851
Freeboard of Merchant Ships, Committee	425	Marine Insurance	21, 51, 157, 219
French Mercantile Marine	950	Marine Insurance Bill, 1876	219
Fugitive Slave Circulars, The 278, 949		Marine Inventions :—	
		Automatic Boat-Releasing Apparatus	139, 449
Galita Island... ..	1126	Boiler-Tube Stopper	137
Genoa, Port of	693	Ejector Ventilating Cowl	136
German Merchant Ships	1033		
German Nautical Association	471		

	PAGE.		PAGE.
Leak Stoppers	138, 448	Norwegian Deep-Sea Exploring Expedition... ..	594, 748, 815, 897
Life-Saving Waistcoat	138	Odessa—Sailors' Institute	663
Patent Office Water-Gauge	63	Oils for Use on Board Ship, Illuminating	618
Marine Society, The	475	On Sea and Land.—Recollections of a Sailor	817, 909, 986, 1096
Marine Surveys, India	506	Our Foreign Trade	280, 657
Maritime Defences and Manning of Merchant Ships 665, 752, 753, 857, 953, 1049		Our Mercantile Marine	518
Master's Authority on Board Ship 481, 590, 1008		Our Representative at the London Tavern	274
Masters' and Mates' Examinations 271, 373		Our Seamen.—By One of Them	883
Mercantile Marine, Our	518	Overboard	175
Mercantile Marine Matters in Germany	471	Over-Insurance	21
Mercantile Marine and Consular Jurisdiction	309	Pacific, South—Doubtful Dangers	576
Mercantile Marine Officers... ..	100	Paraguay	43
Mercantile Marine, Seamen for 184, 222		Paris—Declaration of	653
Merchant Seamen's Pension Fund 297, 399		Pension Fund for Merchant Seamen	297, 399
Merchant Seamen and their Duties 528		Periodicity of Hurricanes	533
Merchant Seamen, Wages of	65	Peru	192, 843
Merchant Service, The	1092	Pigeons on Board Light-Ships	480
Merchant Service and Royal Navy 393		Plimsoll on Deck-Loading, Mr.	153
Merchant Shipping Act, 1876. 764, 772, 876		Prophet and Disciple	116
Merchant Shipping Bill, 1876	203	Raising Sunken Ships	181
Merchant Shipping Legislation 45, 222, 405, 442, 553, 971		Ramsgate—Proposed Sailors' Home	63
Merchant Ships—Crews Committed to Prison 713, 665, 752, 753, 857, 953		Randers Fiord	281
Meteorological Committee's Report 335		Raper's Navigation, 559, 623, 685, 809, 899, 1013, 1118	
Meteorology	335, 497	Resistance of Long Ships, Comparative	630
Mineral Sperm Oil	620	Revolving Storms	390
Missing Australian Ships	652	Reward to an English Captain	934
Mistletoe and Alberta Collision	50	Rogers' Life-Saving System	391
Mount's Bay Drift Mackerel Fishery 617		Royal Naval School, Greenwich	128
Nantes, Port of	401	Royal Navy and the Merchant Service	393
Nautical Assessors	133	Royal Observatory, Greenwich	600
Nautical Race	37	Rudders	475
Nautical Problem	446	Rule of the Road at Sea 377, 415, 454, 558, 1070, 1124	
Nautical Question	282, 453	Russian Navy	771, 1117
Naval Architects' Institution 509, 628		Safety-Valves	135, 839
Naval Courts in Germany	478	Safety-Valves, Direct-Acting Spring 31, 263, 558, 706, 839	
Naval Expenditure, 1876-77	284	Sailing Ship, A Fine	1137
Naval Reserve, Boys	280	Sailors, Culture and Mental Resources of	979
Naval Reserve Training-Ship	1025	Sailors' Home, Ramsgate	62
Navigation and Shipping, 1875	948	Sailors Now and Sixty Years Ago... ..	199
Navigation of the Atlantic... ..	596	Salmon Fisheries	656
Navy Estimates, 1876-77	379	Saving Life at Sea	852
Newfoundland Fisheries	644	Scientific Apparatus—Loan Exhibition	550
Newport and Cardiff	37	Screw Propeller, The 378, 434, 517, 631	
Nicolaieff Floating and Depositing Dock	629		
North Sea Canal, The	1078		
Norway, Fisheries of	893		

	PAGE.		PAGE.
Screw Steamers and the Rule of the Road at Sea	1070	Surrey Commercial Docks Company	1139
Scurvy	612, 1028	Telegraphic Connection of Light-ships with the Shore ...	183
Seacocks	517	Tested Iron and Tested Ships ...	516
Seamen, Deaths of	851	Three-Throw Crank Engines—Compound	631
Seamen, Engagement and Discharge in United States	796	<i>Thunderer</i> , H.M.S., Boiler Explosion	717, 870
Seamen, Health of	450, 797	Tonnage entering British Ports, 1875	1012
Seamen for the Mercantile Marine	184	Torpedoes	656
Seamen of the Present Day ...	494	Trained Seamen for the Mercantile Marine	185
Seaports, and the Contagious Diseases Acts	7	Training-Ships, Aid to	935
Sea Protests	587, 850	Training-Ships, Royal Navy	760, 816
Seaworthiness, Warrants of ...	166	Training-Ship—Naval Reserve ...	1025
Shipbuilding, 1876, 148, 150, 378, 556, 643, 842, ...	935	Trinity House and Captain Hausen	479
Shipmasters' Society 633, 854, 952, 1048, ...	1139	Tropics, Weather in the	497
Shipowners, Combination of 1, 87, 89, ...	274	Unarmoured Vessels	511
Shipowners, the Few and the Many	1	United States, Emigration to ...	1047
Shipping of Canada	303	United States—Engagement and Discharge of Seamen before British Consuls... ..	796
Shipping Legislation	405	United States—Immigrant Tax ...	593
Ships' Rudders	475	Unseaworthy Seamen	135
Ships Detained	387	Unseaworthy Ships	644, 851
Ships Reported for Survey ...	388	Uruguay	38
Ships of War	508, 948	Venice, Port of	597
Sicily, Ports of	1087	Ventilating Cowl, Ejector ...	136
<i>Sol</i> or <i>Melona</i> , Loss of the ...	171	Wages of Merchant Seamen ...	65
Sound Signals, for Use in Fog, &c. 421, ...	1124	Warranty of Seaworthiness ...	166
South Pacific—Doubtful Dangers...	576	Water Gauge, Patent Office ...	63
Spontaneous Combustion of Coal ...	905	Water-Tube Boilers... ..	631
Steel for Shipbuilding	628	Weather in the Tropics	497
Steel-Wire Hawseers	749	Whitehead Torpedo	656
Storms, Revolving	380	White Star Line	316
Storm Flames and Lifebuoy Lights	906	Who is to have Constantinople? ...	1018
Strange Boiler Explosion, A ...	67	<i>Wild Rose</i> , The	182
Stranding of Iron Ships and Errors of Compasses	973	Windmill Pumps	1027
<i>Strathclyde</i> , The	395	<i>Windsor Castle</i> , Loss of the ...	1138
Strength of Iron Ships	49, 93	Wreck Commissioners	357, 1025
Suez Canal, The	18, 260		
Sunken Ships, Raising	181		
Sun's Heat, Utilization of	86		
Superannuated Vigilance	123		

BOOKS, NOTICES OF.

	PAGE.		PAGE.
Annales Hydrographiques	74	Digest of Spanish Customs, Laws, and Regulations, &c. ...	458
Bibliotheca Ichthyologica et Piscatoria, &c.	146	First Ten Years of a Sailor's Life at Sea	634
British Maritime Supremacy, &c. ...	564	General Rules for Formal Investigations into Shipping Casualties, and Courts of Survey ...	1031
Charts of Wrecks, Casualties, and Collisions	279	History of Lloyd's, and of Marine Insurance in Great Britain ...	143
Compass Correction and Iron Ships	140		
Competent Angler, The	279		
<i>Cosmos</i>	74		

	PAGE.		PAGE.
History of Merchant Shipping, &c., (Lindsay) 181, 279,	456	Rivista Marittima	74
Latitude and Longitude, without Instruments, &c.	932	Revue Maritime et Coloniale ...	634
Law of Storms Considered Practi- cally, The	933	Sailors Horn-Book (Piddington) ...	1129
Leith Tide Table and Signal Book for 1876... ..	183	Shipping Legislation	405
List of Lights of British Islands for 1876	73	Society of Engineers.—Transactions for 1875... ..	634
Maritime Notes and Queries. Vol. III.	933	Statistiques Nationales Navigation Maritime	1031
Memoir of Commodore J. G. Goode- nough	458	Storms, Their Nature, Classification, and Laws	145
Merchant Shipping Act, 1876. Special Edition... ..	931	Tables for Facilitating Sumner's Method at Sea	1031
Our National Seamen and our Na- tional Church	642	The Coming War.—England With- out a Navy	14
Physical Geography, or the Terra- queous Globe and its Phenomena	141	Tide Tables for British and Irish Ports	73
Reports of the Meteorological, Mag- netic, and other Observations of the Dominion of Canada for 1874	142	Two years Aft the Mast... ..	1123
		United States Lighthouse Board. —Report for 1875	564
		Welbank's Australian Nautical Al- manac, &c.	458
		Weather Charts and Storm Warn- ings	931

BOARD OF TRADE INQUIRIES.

	PAGE.		PAGE.
Al	848	Fairy Queen	848
Aboyne	848	Forth	848
Adriatic	292	Fred Thompson	292
Alderney	650	Glenaray	475
Amelia	292	Hawk	1040
Ann Catherine	475	Hibernia	475
Arbitrator	292	Humber	1134
Atalanta	848	Huron... ..	941
Auxiliar	475	Jane Young	742
Barbara	650	John Williamson	1134
Brothers' Pride	292	Juventa	1040
Calcium	650	Kronprinzessse Louise	1040
Canadian	1040	Lily of Devon	292
Catherine & Ann Mary	848	Madcap	941
Chalco	1134	Margarett	941
Chesapeake	292	Margaret McColl	475
Clara	292	Marie	1040
Consett	848	Mary Olivia	941
Coonatto	475	Matin... ..	475
Cydonia	292	Memphis	941
Cymba	1134	Mignonette	292
David & Ann	475	Monte Moro	941
Daylight	475	Mora	650
Dinorah	1134	Neda	475
Dorunda	1134	Newsky	848
Dunraven	742	Occidental Star	742
Eastella	292	Ocean Wave	292
Elgin	848	Owl	941
Ellen Owen	650	Prado... ..	1040
Englishman	475	Queen	475

	PAGE.		PAGE.
<i>Rob Roy</i>	1134	<i>Strathmore</i>	650
<i>Rollo</i>	742	<i>Sultana</i>	475
<i>Rubens</i>	292	<i>Surprise</i>	650
<i>Ruby</i>	742	<i>Sussex</i>	941
<i>St. Malo</i>	475	<i>Times</i>	1040
<i>Scotstoun</i>	1134	<i>Tortola</i>	1040
<i>Sophia Joakim</i>	292	<i>Tunstall</i>	941
<i>South of England</i>	742	<i>Vigilant</i>	1134
<i>Sparkenhoe</i>	292	<i>Vulture</i>	292
<i>Stanley Main</i>	650	<i>Zemindar</i>	848

OUR OFFICIAL LOG.

	PAGE.		PAGE.
Albert Medal, The ...	259, 745, 1134	Quarantine Notices	651, 742, 848 941, 1047, 1134
Agreements	847	Royal Naval Reserve	475
Apprentices' Indentures	850	Screw Tunnels	295
Awards to Captains...	1136	Scurvy	387
Boys for the Navy ...	650	Seal Fishery, The	389
Certificates of Inspection	295	Seamen's Wages	847
Colonial Certificates of Competency	654	Ships Detained	387
Consular Appointments	291	Side-Lights	474
Crimping	474, 743, 850	<i>Sol</i> , Loss of the Brigantine	171
Danube—European Commission	80, 745	Spanish Consular Regulations	388
Deck-loads	746, 944	Standard Compass, Adjustment	294
Defective Charts	632	Steering Gear	387
Deserters from Merchant Ships	651, 652	Surgeons on Board Ship	744
Examinations—Extra	292	Surveys	942, 943
Explosives	259, 293	Surveys of Vessels at Request of Owners	294
Fingoland, Annexation	743	Surveyors' Responsibility	943
Grain-laden Vessels...	80	Switzerland Export Duties	1121
Hayti, Trading in ...	388	Tonnage Admeasurement, Danube	745
Illegal Supply of Seamen	650	Tonnage Admeasurement, Norway	653, 732
Indian Mercantile Marine Examinations	744	Tonnage Admeasurement, Spain	651
Inquiries into Shipping Casualties	1040	Training-Ships	472
Inspectors of Shipping	743	Transfer of British Ships to Foreign Flags	81
International Code of Signals	743	Unseaworthiness, Prosecutions for	389
Lifebuoy Lights, &c.	946	Warranty of Seaworthiness in Time Policy	166
Moorish Ports.—Ballast Regulations	744	Wreck Commissioner	1025
Not Rendering Assistance at Sea	433		
Paris Exhibition, 1878	948		
Passenger Tax.—United States	593		
Peru.—Ports of Pimentel and Pacamayao	843		

NAUTICAL NOTICES CONCERNING LIGHTS, BUOYS, FOG-SIGNALS, &c.

	PAGE.		PAGE.
Adriatic—Babac Island	75	Adriatic—Dalmation Islands	77
Brindisi	570	Poror Rock	288
Cattaro Gulf	288, 734	Port Lussu Piccolo	478
Cherso Island	734	Port Pirano	201
Curzola	469	Port Quiesto	587

	PAGE.		PAGE.
Adriatic—Port Rabaz	846	England—Shambles Lighthouse	937, 1038
Port Umago	288	Skerries	938
Port Volosca	288	Southampton	468
Trieste Bay	734	Spithead Buoys	385, 884
Veglia Island	77	Spurn Light Vessel	937, 1038
Africa—East Coast, Mozambique		Start Point	937
	735, 1037	Yarmouth, I. W.	364
Chingani Point	736	Egypt—Alexandria	469
West Coast—Gambia	177	Finland, Gulf of—Revelstone Light	288
South-East Coast	78	France—Cherbourg	734
Australia—Cape Bowling Green ...	78	Dielette	647
Capricorn, Cape	78	Etaples	846, 940
Cleveland Bay	287	Faraman	570
Piper Islands	739	Fouras	569
Port Arlington	939	Havre	569
Port Macdonnell	1135	Honfleur	734
Port Philip	385, 645, 939	Hyères	571
Sandy Cape	1035	Loire River	940
Sugarloaf Point, N.S.W.	76, 570	Marseilles	468
Bas Strait—King Island	178	Soudre River	180
Belgium—See Netherlands.		Treguier River	1036
Brazil—Macoripe Point	385	Fiji Islands	571
Pernambuco Roads	385	Germany—Amrum, Schleswig Hol.	
British Guiana—Demerara	78	stein	647
California—San Francisco	1131	Borkum Flat	77
Cape Breton Island—Kidston		Cuxhaven	76, 289, 570
Island	179	Flensborg Fiord	735
Cape Verde Islands	1037	Hamburg	289
Central America—Fonseca Gulf ...	734	Jade River	845
Sonsonate	734	Sonderborg	738
Channel Islands—Casquets, Alderney	648	Weser River	740
China—Fisher Island	384	Heligoland—Fog-Signal	1034
Hong-Kong	647	India—China Ba-keer	571
Ke-lung Harbour	938	Katiawar	844
Ockea Island	287	Kurachi	289
Shantung	75	Madras	466
Tsingeeu Island	384	Oyster Reef	571
Turnabout Island	466	Verawal	571
Wusung River	287	Ireland—Aran Island	740
Cochin China	738	Burford Bank	467, 736
Coral Sea	739	Codling Bank	467, 736
Denmark—Copenhagen	647	Cork Harbour	737
England—Beaumaris	290	India Bank	467, 736
Carnarvon Bay	938	Kish Bank	76, 467, 736, 1034
Coatham	736	Ridge Bank	467, 736
Dover Pier	940	Rosslare, Ballygerry	740
Fern Islands	469, 937	Vanguard, Wreck of the	76, 1034
Goodwin	469	Warren Point, Lough Foyle ...	384
Grassholm Island	1036	Italy—Leghorn	468
Hewett Channel	470, 738	Vada	846
Humber River	736, 937	Japan—Joka Sima	177
Medway River	285, 1131	Nagasaki	648
Milford Haven	938	Tsimo Sima	470
Newarp	469	Java Sea—North Watcher Island ...	466
Plymouth	738	Malacca Strait—Pulo Brasse ...	289, 938
Portland Breakwater	1131	Pulo Pisang	736
St. Abbs Head	470	Malta—Grand Harbour	469
St. Catherine's Point, I. W. ...	384, 938, 1038	Mediterranean—Alboran Island ...	938
		Netherlands—Domburg	845

	PAGE.		PAGE.
Netherlands—Noordzeehaven ...	1131	St. Lawrence Gulf and River—	
North Hinder Light ...	737	Tabisintac Gully, N. B. ...	178
Scheveningen ...	177	Tracadie Gully, N.B. ...	178
Walcheren Island ...	176, 845, 938	Scotland—Aberdeen ...	846
Zijpe ...	176	Sanda Island ...	938
Zuider Zee ...	177, 937, 1130	Sicily ...	846
Newfoundland—Harbour Britain ...	288	South America—Chili ...	1037, 1132
Port Basque ...	77	Inocentes Channel ...	1132
Toulingnet Island ...	1038	Rio de la Plata ...	939
New Zealand—Middle Island ...	289, 848, 1038	Valdivia... ...	846
North Island ...	290, 1039	South Atlantic—Shoal ...	385
Ottago Harbour ...	646	South Pacific—Boscawen Island ...	569
Norway—Aas Vør ...	1035	Curacao Reef ...	569, 645
Kingholmen Island ...	1130	Keppel Island ...	569
Langotangen ...	290, 845	Spain—Auton Island ...	78
Lofoten Islands ...	740	Bilbao ...	570
Midtholmen Island ...	1130	Guetaria ...	569
Skudesnæs ...	740	Machichago ...	570
System of Beaconage, &c. ...	939	North Coast ...	646
Valderhoug ...	1130	Tarragona ...	468
Vanelos Fiord ...	1036	Vigo Bay ...	286
Wægholm ...	846	Sweden—The Sound, Flint Channel ...	735
Nova Scotia and New Brunswick—		Sumatra ...	289, 736
Fundy, Bay of ...	179, 286	Tasmania—Banks Strait ...	287, 571, 645, 739, 740
Halifax Harbour ...	383	Torres Straits— ...	570, 739, 1035, 1036
Meteghan River ...	179	Turkey—Kertch Strait ...	568, 569
Passamaquoddy Bay ...	467	United States—Brant Island ...	738
Sambro Island ...	1131	Bulkhead Shoal, Delaware ...	1132
Tor Bay ...	383	Charleston Harbour ...	1034
Pacific Ocean—Caroline, Vostock, and Flint Islands ...	385	Cross Ledge Shoal, Delaware... ..	177
Portugal—Tagus Entrance ...	179, 470	Currituck, North Carolina ...	738
Russia—Dniester River ...	736	Fourteen-foot Bank, Delaware ...	938
Odessa ...	469	Henlopen Cape, Delaware ...	287
Riga Gulf ...	290	St. Helena Sound ...	646
St. Lawrence Gulf and River—		Schuylkill River ...	179
Carousal Island... ..	646	Vineyard Sound, Mass. ...	77, 287
Kamouraska Islands ...	383	Vancouver Island—Berens Island ...	288
Martin River ...	647	Entrance Island ...	569
Miscon Island ...	178	West Indies—Bird Rock, Bahamas ...	648
Neguac Gully, N. B. ...	178	Haïti ...	571, 648
Origneaux Point ...	178	Little Curacao Island ...	78, 571
Pocmonche Gully ...	570	Oruba Island ...	571
Prince Edward Island ...	646	Puerto Rico ...	75, 385
Shediac Harbour, N. B. ...	178	St. Martin Island ...	78

HYDROGRAPHIC NOTICES.

PUBLISHED BY THE ADMIRALTY.

	PAGE.		PAGE.
Africa, South and East Coasts ...	471, 1039	Chatham Islands ...	741
Arafura Sea ...	940	China ...	386, 940, 1133
Australia ...	940	D'Entre Castreaux Islands ...	79
Bay of Bengal, Revolving Storms... ..	471	England, Folkestone Tidal Signals ...	940
Borneo, Basilan, and Zebu Islands ...	847, 1133	Haïti or San Domingo ...	1133
Carimata Strait ...	1133	Hokianga River, &c. ...	741

	PAGE.		PAGE.
Ireland, Coast of	471	New Zealand	180, 741
Labrador, N. E. Coast	649	Otago Harbour	741
Macaripe Cave, Trinidad Island,		Pacific Islands, in the	386
Puerto Cabello, Curacao Island,		Quilimane River	649
Serrana Bank, and Cumpeche		Red Sea	78
Bank	649	Sherbro River	471
Magellan Strait	741	South America, East Coast	741
Mauritius Island	1133	South America, West Coast	741
Newfoundland	847	South Cachops Shoal, Lisbon	649
New Granada	79	Torres Strait... ..	741
New Guinea	79		



